PROJECT DESCRIPTION:
THE PURPOSE OF THE PROJECT IS FOR DOMINION ENERGY TO REBUILD TRANSMISSION LINE 550 (TL 550). IN ORDER TO MAINTAIN THE STRUCTURAL INTEGRITY AND RELIABILITY OF ITS TRANSMISSION SYSTEM IN COMPLIANCE WITH MANDATORY NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION ("NERC") RELIABILITY STANDARDS, THE COMPANY PROPOSES TO REBUILD, ENTIRELY WITHIN AN EXISTING ROW, 500 KV LINE #550 (MT. STORM TO VALLEY). THE LINE IS APPROXIMATELY 64.5 MILES LONG, OF WHICH 33.6 MILES ARE LOCATED IN GRANT, HARDY, AND PENDLETON COUNTIES IN WEST VIRGINIA AND 30.9 MILES ARE LOCATED IN AUGUSTA AND ROCKINGHAM COUNTIES IN VIRGINIA. THE TRANSMISSION LINE RUNS FROM THE EXISTING MT. STORM SUBSTATION IN GRANT COUNTY, WEST VIRGINIA TO THE EXISTING VALLEY SUBSTATION IN AUGUSTA COUNTY, VIRGINIA.

THE PROPOSED PROJECT WILL DEMOLISH AND REBUILD THE AGING TRANSMISSION LINE INFRASTRUCTURE THAT IS AT THE END OF ITS SERVICE LIFE IN ORDER TO COMPLY WITH MANDATORY NERC STANDARDS. THE PROPOSED PROJECT WILL ENABLE MAINTENANCE OF THE OVERALL LONG-TERM RELIABILITY OF THE TRANSMISSION SYSTEM AND THE GENERATING CAPABILITIES OF THE SYSTEM. EXISTING STRUCTURES WERE CONSTRUCTED BEFORE 1966 ON SINGLE CIRCUIT COR-TEN® TOWERS. THESE COR-TEN® TOWERS HAVE BEEN IDENTIFIED FOR REBUILD BASED ON AN ASSESSMENT IN ACCORDANCE WITH MANDATORY NERC STANDARDS.

BECAUSE THE EXISTING ROW IS ADEQUATE TO CONSTRUCT THE PROPOSED PROJECT, NO NEW ROW IS NECESSARY. GIVEN THE AVAILABILITY OF EXISTING ROW AND THE STATUTORY PREFERENCE GIVEN TO THE USE OF EXISTING ROW, AND BECAUSE ADDITIONAL COSTS AND ENVIRONMENTAL IMPACTS WOULD BE ASSOCIATED WITH THE ACQUISITION AND CONSTRUCTION OF NEW ROW, NO ALTERNATE ROUTES REQUIRING NEW ROW FOR THIS PROJECT WERE CONSIDERED.

EXISTING SITE CONDITIONS:
THE EXISTING SITE CONDITIONS CONSIST OF FORESTED AREAS AS WELL AS SOME AREAS THAT ARE AGRICULTURAL.

ADJACENT AREAS:
THE MAJORITY OF THE AREAS ADJACENT TO THE PROJECT ARE FORESTED AS WELL AS SOME AREAS THAT ARE AGRICULTURAL.

OFF-SITE AREAS:
OFF SITE AREAS WILL BE USED FOR THIS PROJECT AND WILL HAVE THE APPROPRIATE PERMITTING EITHER THROUGH THIS PERMIT OR SEPERATE PERMITS.

SOILS:
REFER TO SHEET 4 FOR SOILS DESCRIPTION.

CRITICAL AREAS:
CRITICAL AREAS HAVE BEEN IDENTIFIED AS STREAMS, WETLANDS, AND STEEP SLOPES. STREAMS WILL BE PROTECTED BY A SILT FENCE (SF) BARRIED AND ROLLED EROSION CONTROL PRODUCT. ON GWNF ROLLED EROSION CONTROL PRODUCT SHOULD BE JUTE OR SIMILAR AND CANNOT CONTAIN MONOFILAMENT. WETLANDS WILL BE PROTECTED BY TIMBER MATS AND A SILT FENCE BARRIER AT THE BEGINNING OF THE WETLAND. CRITICAL SLOPES WILL BE PROTECTED BY ROLLED EROSION CONTROL PRODUCT AND BLANKETS AND MATTING. CRITICAL SLOPES INCLUDE AREAS THAT WOULD BE PRONE TO SLIPS OR SLOUGHING. SPECIAL ATTENTION SHOULD BE GIVEN TO THOSE SLOPES THAT ARE NEAR SURFACE WATERS. THE DISCHARGE OF SOILS FROM FAILED SLOPES INTO SURFACE WATERS IS A SERIOUS OCCURRENCE AND MAY RESULT IN ENVIRONMENTAL NON-COMPLIANCE.

EROSION AND SEDIMENT CONTROL MEASURES: PLEASE REFER TO SHEETS 6A – 6R FOR TYPICAL DETAILS ASSOCAITED WITH THIS PLAN. ADDITIONAL DETAILS WILL BE PROVIDED WITH THE FINAL PLAN.

STRUCTURAL PRACTICES
Safety Fence - STD & SPEC 3.01
A protective barrier installed to prevent access to and erosion control measure.

Temporary Stone Construction Entrance- STD. & SPEC. 3.02
A stabilized stone pad with a filter fabric underliner located at points of vehicular ingress and egress on a construction site.

Construction Road Stabilization- STD. & SPEC. 3.03
The temporary stabilization of access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes with ston e immediately after grading.

Straw Bale Barrier- STD. & SPEC. 3.04
A temporary sediment barrier consisting of a row of entrenched and anchored straw bales.

Silt Fence- STD. & SPEC. 3.05
A temporary sediment barrier consisting of a synthetic filter fabric stretched across and attached to supporting posts and entrenched.

Temporary Diversion Dike- STD. & SPEC. 3.09
A temporary ridge of compacted soil constructed at the top or base of a sloping disturbed area.

Temporary Fill Diversion- STD. & SPEC. 3.10
A channel with a supporting ridge of soil on the lower side, constructed along the top of an active earth fill.

Temporary Right-Of-Way Diversion- STD. & SPEC. 3.11
A ridge of compacted soil or loose rock or gravel constructed across disturbed rights-of-way and similar sloping areas.

Diversion- STD. & SPEC. 3.12
A channel constructed across a slope with a supporting earthen ridge on the lower side.

Temporary Slope Drain- STD. & SPEC 3.15
A flexible tubing or conduit extending from the top to the bottom of a cut or fill slope.

Stormwater Conveyance Channel- STD. & SPEC 3.17
A permanent, designed waterway, shaped, sized, and lined with appropriate vegetation or structural material used to safely convey stormwater runoff within or away from a developing area.

Outlet Protection- STD. & SPEC 3.18
Structurally lined aprons or other acceptable energy dissipating devices placed at the outlets of pipes or paved channel sections.

Riprap- STD. SPEC 3.19
A permanent, erosion-resistant ground cover of large, loose, angular stone with filter fabric or granular underlining.

Rock Check Dam- STD & SPEC 3.20
Small temporary stone dams constructed across a swale or drainage ditch.

Level Spreader- STD & SPEC 3.21
An outlet for dikes and diversions consisting of an excavated depression constructed at zero grade across a slope.

Vegetative Streambank Stabilization- STD & SPEC 3.22
The use of vegetation in stabilizing streambanks.

Structural Streambank Stabilization- STD & SPEC 3.23
Methods of stabilizing the banks of live streams with permanent structural measures.

Temporary Vehicular Stream Crossing- STD & SPEC 3.24
A temporary structural span installed across a flowing watercourse for use by construction traffic. Structures may include bridges, round pipes, pipe arches, or oval pipes.

Utility Stream Crossing- STD & SPEC 3.25
A strategy for crossing small waterways when in-stream utility construction is involved.

Dewatering Structure- STD & SPEC 3.26
A temporary settling and filtering device for water which is discharged from dewatering activities.

Surface Roughening- STD & SPEC 3.29
Providing a rough soil surface with horizontal depressions created by operating a tillage or other suitable implement on the contour, or by leaving slopes in a roughened condition by not fine-grading them.

Topsoiling- STD & SPEC 3.30
Preserving and using topsoil to provide a suitable growth medium for vegetation used to stabilize disturbed areas. Applicable where preservation or importation of topsoil as most cost-effective method of providing a suitable growth medium: not recommended for slopes steeper than 2:1 unless other measures are taken to prevent erosion and sloughing.

Temporary Seeding- STD & SPEC 3.31
The establishment of a temporary vegetative cover on disturbed areas by seeding with appropriate rapidly growing annual plants.

Permanent Seeding- STD & SPEC 3.32
The establishment of perennial vegetative cover on disturbed areas by planting seed.

Bermudagrass & Zoysiagrass Est- STD & SPEC 3.34
The establishment of vegetative cover with hybrid Bermudagrass or Zoysiagrass by planting sprigs, stolons, or plugs.

Mulching- STD & SPEC 3.35
Application of plant residues or other suitable materials to the soil surface.

Soil Stabilization Blankets & Matting- STD & SPEC 3.36
The installation of a protective covering (blanket) or a soil stabilization mat on a prepared planting area of a steep slope, channel, or shoreline.

Trees, Shrubs, Vines & Ground Cover- STD & SPEC 3.37
Stabilizing disturbed areas by establishing vegetative cover with trees, shrubs, vines, or ground covers.

Tree Preservation & Protection –STD & SPEC 3.38
Protection of desirable trees from mechanical and other injury during land disturbing and construction activity.

Silt Sock
A three-dimensional tubular sediment/perimeter control that is installed down slope of any disturbed area and filters soluble pollutants from runoff.

MANAGEMENT STRATEGIES/ SEQUENCE OF CONSTRUCTION
NOTE: structures 129-137 located in USFS are located in WV Phase 3 E&S and Road Design Plans

PHASE I SEQUENCE
GENERAL CONSTRUCTION SEQUENCE WILL MOVE FROM STRUCTURE 138 SOUTH TO STRUCTURE 199.
·INSTALL TEMPORARY CONSTRUCTION ENTRANCE (CE) AND ACCESS TO CONSTRUCTION AREAS.
·EXECUTE PROPOSED CLEARING ACTIVITIES, IF NECESSARY.
·INSTALL TEMPORARY PERIMETER CONTROLS AS SHOWN ON THE E&S PLAN SHEETS.
·COMMENCE ROAD IMPROVEMENT ACTIVITIES. REFER TO ROAD DESIGN PLANS.
·INSTALL ALL TIMBER MATS IN CRITICAL OR SENSITIVE AREAS.
·INSTALL TEMPORARY WETLAND AND STREAM CROSSINGS IN PERMITTED LOCATIONS.
·INSTALL FOUNDATIONS WORK FOR NEW STRUCTURES.

PHASE II SEQUENCE
·FORMAL STRUCTURE CONSTRUCTION ACTIVITIES BEGIN WITH INSTALLATION OF NEW STRUCTURES. ONCE THE NEW STRUCTURES ARE INSTALLED, WIRE PULLING OPERATIONS WILL BEGIN TO REMOVE THE OLD CONDUCTOR WIRES WITH NEW. AFTER PULLER OPERATIONS ARE COMPLETED ALL EXISTING STRUCTURES WILL REMOVED.
·ONCE STRUCTURE CONSTRUCTION IS COMPLETE, REHABILITATION EFFORTS WILL BEGIN.
·ONCE STABILIZED, REMOVAL OF ALL NECESSARY EROSION AND SEDIMENT CONTROLS WILL OCCUR.

TEMPORARY & PERMANENT STABILIZATION:
PLEASE REFER TO THE TL 550 PHASE 3 WV & VA SITE-SPECIFIC SEED MIX & TECHNIQUES PLAN FOR TEMPROARY AND PERMANENT STABILIZATION.

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PROJECT: TL 550 PHASE 3
APPLICANT: DOMINION ENERGY

STANDARD NOTES AND DETAILS

ROCKINGHAM COUNTY, VIRGINIA

SHEET 2

PROJECT MANAGER:	KB
DRAWN:	LC
JOB NUMBER:	5641.48
DATE EXPORTED:	08/25/2021
REVISIONS:	NONE

MAINTENANCE OF E&SC MEASURES

MAINTENANCE SCHEDULE

In general, the contractor shall check all erosion and sediment control measures daily and after each 1/4 inch rainfall. The following items will be checked in particular:

Temporary stone construction entrance shall be maintained in a condition, which will prevent tracking or flow of mud onto public right-of-ways. Periodic top dressing with additional stone or the washing and reworking of existing stone shall be executed as conditions demand. All materials spilled, dropped, washed or tracked from vehicles onto roadways or into storm drains must be removed immediately.

Silt fence and straw bale barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Sediment deposits shall be removed after each storm event and when deposits reach approximately one-half the height of the barrier. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, repaired, and seeded.

Temporary diversion dikes shall be inspected after every storm and repairs made to the dike as necessary. Once every two weeks, whether a storm event has occurred or not, the measure shall be inspected and repairs made if needed. Damages caused by construction traffic or other activity shall be repaired before the end of each working day.

CALCULATIONS FOR EROSION AND SEDIEMNT CONTROL MEASURES

CALCULATIONS THAT ARE NEEDED FOR E&S MEASURES WILL BE PROVIDED IN THE ROAD DESIGN PLANS. ALL E&S MEASURES SHALL COMPLY WITH DOMINION SPECIFICATION TE VEP 8000-13-00, "GENERAL EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR THE CONSTRUCTION AND MAINTENANCE OF ELECTRIC TRANSMISSION LINES"

STORMWATER MANAGMENT CONSIDERATION

WATER QUALITY:

THE WATER QUALITY REQUIREMENT FOR THIS PROJECT IS BASED ON 9VAC25- 870-63 OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK. DUE TO THE CHANGE OF FORESTED/OPEN SPACE PRE-DEVELOPED CONDITIONS TO MANAGED TURF AND IMPERVIOUS POST-DEVELOPED CONDITIONS WATER QUALITY WILL BE PROVIDED THROUGH THE PURCHASE OF AUTHORIZED NUTRIENT CREDITS.

WATER QUANTITY:

THE WATER QUANTITY REQUIREMENT FOR THIS PROJECT IS BASED ON 9VAC25- 870-66 OF THE VIRGINIA STORMWATERMANAGEMENT HANDBOOK. WATER QUANTITY WILL BE PROVIDED WITH THE FINAL PLAN.

SPECIFICATION/DETAIL DRAWINGS FOR EROSION AND SEDIMENT CONTROL MEASURES:

REFER TO THIS PLAN AND DOMINION SPECIFICATION TE VEP 8000-13-00, "GENERAL EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR THE CONSTRUCTION AND MAINTENANCE OF ELECTRIC TRANSMISSION LINES." FOR SPECIFICIATIONS AND DETAILS.

SPECIFICATIONS FOR STORMWATER AND STORMWATER MANGEMENT STRUCTURES:

PLEASE REFER TO THE ROAD DESIGN PLANS FOR STORMWATER STRUCURES (I.E. CULVERTS, DITCHES, ETC.) NO STORMWATER MANAGEMENT STRUCUTRES ARE ASSOCAITED WITH THIS PLAN.

NOTES:

1. CONSTRUCTION SHALL COMPLY WITH DOMINION SPECIFICATION TE VEP 8000-13-00, "GENERAL EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR THE CONSTRUCTION AND MAINTENANCE OF ELECTRIC TRANSMISSION LINES" (SEE SECTION 2 OF STORMWATER POLLUTION PREVENTION PLAN). CONSTRUCTION SHALL ALSO COMPLY WITH GWNF FORESTWIDE STANDARDS WHICH ARE NOTED ON THE GWNF FORESTWIDE STANDARDS SHEETS.

2. LAND DISTURBANCE SHALL BE CONFINED TO THE CONSTRUCTION LIMITS WHICH ARE DIRECTLY ADJACENT TO THE ACCESS ROAD INCLUDING AREAS FOR EQUIPMENT TO MANEUVER OR AS INDICATED ON THE PLAN. THE TOTAL MAY NOT EXCEED THE PERMITTED AREA.

3. CRITICAL AREAS THAT MAY HAVE SERIOUS EROSION PROBLEMS (E.G. STEEP SLOPES, WATER BODIES, UNDERGROUND SPRINGS, WETLANDS, ETC.) WHERE EVIDENT ARE IDENTIFIED ON THE PLAN. CARE SHALL BE TAKEN TO MINIMIZE LAND DISTURBANCE IN THESE AREAS AND ONLY IN PERMITTED AREAS.

NOTES CONTINUED:

4. EROSION CONTROL MEASURES SHALL BE INSTALLED AS INDICATED ON THE PLAN OR INSTRUCTED BY A QUALIFIED INSPECTOR. IT WILL CONTINUE TO BE INSPECTED AND MAINTAINED UNTIL SITE REHABILITATION IS COMPLETE.

5. FIELD MODIFICATIONS WITHIN THE PERMITTED CONSTRUCTION LIMITS (AS SHOWN ON THE PROJECT MAPS) MAY BE APPROVED BY THE CONSTRUCTION COORDINATOR/CERTIFIED LAND DISTURBER AND NOTED ON THE DRAWING. FIELD MODIFICATIONS THAT EXTEND OUTSIDE OF PERMITTED CONSTRUCTION LIMITS (AS SHOWN ON THE PROJECT MAPS) REQUIRE APPROVAL BY THE GWNF PRIOR TO IMPLEMENTATION.

6. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

7. STRUCTURE LOCATIONS WERE PROVIDED BY DOMINION. STREAM AND WETLANDS WERE DELINEATED AND GPS LOCATED BY RES.

8. LAYDOWN YARDS AND STORAGE AREAS ARE INCLUDED IN THE LIMITS OF DISTURBANCE TOTALS AND ARE TO BE MAINTAINED WITH EROSION AND SEDIMENT CONTROLS.

9. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR THE DESIGN, MODIFICATION, OR CONSTRCUTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.

10. SITE SPECIFIC RESTORATION MEASURES FOR DISTURBED AREAS WITHIN THE PROJECT LIMITS WILL BE PROVIDED WITH THE FINAL PLANS.

11. ALL DISTURBED AREAS TO BE STABILIZED WITH PERMANENT SEED MIX UPON COMPLETION OF WORK.

12. ELECTRIC TRANSMISSION LINE ROWS ARE REQUIRED TO BE CLEARED TO A SPECIFIC WIDTH AS DETERMINED BY THE LINE VOLTAGE. FORESTRY ACTIVITIES MAY INCLUDE LIMITED TRIMMING IN ORDER TO MAINTAIN THE EXISTING ROW WIDTH, SELECT DANGER TREE REMOVAL, OR CLEARING OF NEW ROW. IN ALL CASES, BRUSH, TREES, AND OLD STUMPS ARE CUT AT GROUND LEVEL AND MAY BE GROUND OR CHIPPED. THE ROW IS NOT GRUBBED, THUS LEAVING THE ROOT MASS INTACT AND THE SOIL UNDISTURBED. IN ACCORDANCE WITH THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) GUIDE V.3.0 OR THE MOST CURRENT VERSION, UTILITY ROW (EXISTING OR NEW) SHALL BE BUSH HOGGED NO MORE THAN FOUR (4) TIMES PER YEAR. THIS WILL ALLOW THE ROW TO MAINTAIN THE HYDROLOGIC FUNCTIONALITY OF A FOREST/OPEN SPACE UNLESS THE UNDERLYING PROPERTY OWNER MAINTAINS THE PROPERTY IN A DIFFERENT CONDITION. REFER TO THE APPROVED VEGETATION MAINTENANCE PLAN FOR DOMINION ENERGY ELECTRIC TRANSMISSION LOCATED IN APPENDIX A OF THE DOMINION STANDARDS AND SPECS FOR ADDITIONAL INFORMATION.

13. E&S DESIGN AND DRAINAGE AREAS BASED OFF LIDAR – REGIONAL TOPOGRAPHY, MICROTOPOGRAPHY, ROCK LEDGES, AND OTHER EXISTING FIELD CONDITIONS MAY INHIBIT THE USE OF, OR ELIMINATE THE PRACTICALITY OF CLEAN WATER DIVERSIONS. WHERE APPLICABLE, FIELD REPRESENTATIVES MAY USE PROFESSIONAL DISCRETION TO INSTALL OR REMOVE DESIGNED CLEAN WATER DIVERSIONS FROM PLAN AS FIELD CONDITIONS WARRANT. CONTROL INSTALLATIONS OR ELIMINATIONS TO BE DOCUMENTED IN SWPPP.

14. CONTRACTOR TO ENSURE EQUIPMENT BEING USED ON GWNF IS FREE OF INVASIVE / NON-NATIVE PLANTS/SEEDS/ANIMALS/INSECTS VIA POWER WASHING OR OTHER CLEANING METHODS PRIOR TO SITE ENTRY.

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PROJECT: TL 550 PHASE 3
APPLICANT: DOMINION ENERGY

STANDARD NOTES AND DETAILS

ROCKINGHAM COUNTY, VIRGINIA

SHEET 3

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	10/13/2020
REVISIONS:	NONE

GEORGE WASHINGTON NATIONAL FOREST FORESTWIDE STANDARDS

WATERSHED RESOURCES: WATER AND SOIL QUALITY

FW – 1: Resource management activities that may affect soil and/or water quality meet or are more stringent than Virginia and West Virginia Best Management Practices, State Erosion Control Handbooks, and standards in this Forest Plan.

FW – 5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years. (The activity area is the area of potential soil disturbance expected to produce vegetation in the future, for example: timber harvest units, prescribed burn area, grazing allotment, etc.)

FW – 6: Locate and design management activities to avoid, minimize, or mitigate potential erosion.

FW – 9: Where soils are disturbed by management activities, appropriate revegetation measures should be implemented. When outside the normal seeding seasons, initial treatments may be of a temporary nature, until permanent seeding can be applied. Revegetation should be accomplished within 5 years. For erosion control, annual plants should make up >50% of seed mix when seeding outside the normal seeding season and the area should be reseeded with perennials within 1 ½ year

WATERSHED RESOURCES: CHANNELED EPHEMERAL ZONES

FW – 21: The addition of large woody debris in channeled ephemeral reaches will primarily be through passive recruitment rather than active placement.

FW – 23: When crossing channeled ephemeral streams, culverts, temporary bridges, hardened fords, or corduroy are used where needed to protect channel or bank stability.

FW – 24: Construction of crossings is completed on all channeled ephemerals as soon as possible after work has started on the crossing. Permanent and temporary roads on either side of crossings within the channeled ephemeral zone are graveled.

FW – 25: If culverts are removed, banks and channel must be restored to a natural size and shape. All disturbed soil must be stabilized.

WATERSHED RESOURCES: THREATENED, ENDANGERED AND SENSITIVE SPECIES MANAGEMENT

FW – 37: Maintain records of locations and conditions of federally listed threatened and endangered species and of Regional Forester's sensitive species within the planning area.

WATERSHED RESOURCES: COW KNOB SALAMANDER MANAGEMENT

FW – 45: If Cow Knob salamanders are found in areas outside the Shenandoah Mountain Crest management prescription area, those areas will be subject to the same management measures as described in the Shenandoah Mountain Crest Management Prescription Area 8E7.

WATERSHED RESOURCES: INDIANA BAT MANAGEMENT

FW – 50: When active roost trees are identified on the Forest, they will be protected with a ¼ mile buffer surrounding them. This protective buffer remains until such time the trees and associated area no longer serve as a roost (e.g. loss of exfoliating bark or cavities, blown down, or decay).

FW – 51: No disturbance that will result in the potential taking of an Indiana bat will occur within an active roost tree buffer. Commercial timber harvesting, road construction, and use of the insecticide diflubenzuron (Dimilin) areprohibited. Prescribed burning, timber cutting, road maintenance, and integrated pest management using biological or species-specific controls during non-roosting season are allowed, following project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats and the hibernacula. Other activities within this buffer are allowed following determination that they will not result in a potential taking of an Indiana bat.

FW – 52: Removal of known Indiana bat active roost trees will be avoided, except as specified in the next two standards.

FW – 53: If during project implementation, active roost trees are identified, all project activity will cease within a ¼ mile buffer around the roost tree until consultation with U.S. Fish and Wildlife Service is completed to determine whether project activities can resume.

FW – 54: In the event that it becomes absolutely necessary to remove a known Indiana bat active roost tree, such a removal will be conducted during the time period when the bats are likely to be in hibernation (November 15 through March 31), through informal consultation with the U.S. Fish and Wildlife Service. Trees identified as immediate threats to public safety may be removed when bats are not hibernating; however, informal consultation with U.S. Fish and Wildlife Service is still required. Examples of immediate threats to public safety include trees leaning over a trail, public road or powerline that could fall at any time due to decay or damage.

FW – 57: If active maternity roost sites are identified on the Forest, they will be protected with a 2.5-mile buffer defined by the maternity roost, alternate roost sites, and adjacent foraging areas.

FW – 58: No disturbance that will result in the potential taking of an Indiana bat will occur within this active maternity roost site buffer. Commercialtimber harvesting, road construction, and use of all insecticides are prohibited. All other activities within this buffer will be evaluated during project level analysis to determine the direct, indirect, and cumulative effects on Indiana bats, through informal consultation with the U.S. Fish and Wildlife Service.

FW – 59: If during project implementation, active maternity roost sites are identified, all project activity will cease within a 2.5-mile buffer around the maternity roost until consultation with U.S. Fish and Wildlife Service is completed to determine whether project activities can resume.

RECREATION: SCENERY

FW – 182: The Forest Scenic Integrity Objectives (SIOs) are met for all new projects (including special uses).

FW – 193: Structures have finishes that reduce contrast with the desired landscape character

RECREATION: CULTURAL RESOURCES

FW – 200: Projects are designed to avoid, minimize, or mitigate negative effects on potentially significant cultural resources. In-place protection of identified sites is the minimum requirement until site significance is determined.

MINERALS AND GEOLOGIC RESOURCES: GEOLOGIC HAZARDS

FW – 212: Locate, design, and maintain trails, roads, other facilities, and management activities to avoid, minimize, or mitigate geologic hazards and potential impact on infrastructure and public safety. Site characterization prior to ground disturbance on slope gradients of 40% or greater will: 1) identify existing geologic slope stability conditions; 2) evaluate how construction would alter the existing conditions; and 3) assess potential for slope failures (from cut slopes, fill slopes, disposal sites for excess excavation, and sidecast material). For ground-disturbing projects on slope gradients of 40% or greater located upslope and within one-half mile of Forest external boundary, consider a geologic hazard and risk assessment of off-Forest public safety for landslides, including debris flows.

INFRASTRUCTURE: FACILITIES, ROADS AND ACCESS

FW – 228: New construction of local roads is managed as closed to public use unless the following conditions are met; Use is compatible with the recreation opportunity for the area; Public safety is provided for; Road serves an identified public need; The area accessed by the road and associated uses can be managed in accordance with management prescription and forestwide direction considering available financial and personnel resources; or Funds are available for maintenance, or cost-sharing or volunteer maintenance can be arranged.

FW – 229: Roads are seasonally or temporarily closed to motorized public use if there is a temporary or recurring need to: prevent unacceptable resource damage; Prevent conflicts with the recreational opportunity established for the area; Protect property or public safety during resource management activities; The facility serves a seasonal or temporary management objective; or Reduce the need for additional maintenance associated with damage to the roadbed and/or surface that might occur during adverse weather or seasonal conditions.

INFRASTRUCTURE: ROAD CONSTRUCTION

FW – 230: Roads are designed and constructed to the standard necessary to provide access and manage resources according to management prescription desired conditions and public safety.

LINEAR RIGHTS-OF-WAY AND COMMUNICATION SITES

FW – 243: Develop and use existing corridors and sites to their greatest potential in order to reduce the need for additional commitment of lands for these uses. When feasible, expansion of existing corridors and sites is preferable to designating new sites.

FW – 245: Design new towers and ridge top developments to mitigate collision impacts to migratory birds through coordination of project planning and implementation with the U.S. Fish and Wildlife Service.

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PROJECT: TL 550 PHASE 3
APPLICANT: DOMINION ENERGY

GWNF FORESTWIDE STANDARDS

ROCKINGHAM COUNTY, VIRGINIA

SHEET 4A

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	564148
DATE EXPORTED:	10/13/2020
REVISIONS:	NONE

PENDING INCLUSION:

WATERSHED MANAGEMENT: SPECIES DIVERSITY

FW – 65: When land disturbing projects are proposed in cliff, talus and large rock outcrop areas: a) identified species associated with the Cliff, Talus and Rock Outcrop Species Group will be searched for; and b) effects of the proposed project on these species will be evaluated

VEGETATION, OLD GROWTH AND FOREST HEALTH: NON-NATIVE INVASIVE PLANT SPECIES

FW – 91: The use of Category 1 Species (Regional list of species that are known to be invasive and persistent throughout all of most of their range) is prohibited.

FW – 92: The establishment or encouragement of Category 2 Species (Regional list of species that are suspected to be invasive or are known to be invasive in limited areas) is prohibited in areas where ecological conditions would favor invasiveness and is discouraged elsewhere. Projects that use Category 2 Species should document why no other (non-invasive) species will serve the purpose and need.

FW – 93: Favor use of native grasses and wildflowers beneficial as wildlife foods when seeding temporary roads, skid roads, log landings and other temporary openings when slopes are less than 5%. On slopes greater than 5%, favor use of vegetation that best controls erosion.

FW – 94: Planning for management activities includes consideration of existing and potential non-native invasive plant (NNIP) threats. Site-specific plans should include control/eradication treatments and follow up monitoring of those treatments for effectiveness. Examples include inventory and treatment of log landing and haul road sites for timber sales, fire control lines (particularly those with soil disturbance), areas near existing seed sources for prescribed burns, and trail corridors for trail construction.

FW – 95: A contractor's sources of fill, soil, shale, and related materials will be pre-approved. Contractors will submit a description of the source. The project inspector or a qualified designee will inspect the supply source. Use of the source will be prohibited if contaminated by transferable agents of invasive species.

FW – 96: Forest sources of fill, borrow or road surfacing material will be examined for NNIPs and treated as necessary to prevent transfer of invasive plants to other parts of the Forest.

FW – 97: Mechanical equipment, such as that used for logging, mowing, firefighting and earth moving (including road graders), should be free of soil, seeds, and other attached material prior to coming on the Forest or being moved from areas on the Forest with NNIP infestations to areas free from noticeable infestations. Such equipment should be examined by qualified Forest Service personnel before being allowed on the Forest.

FW – 98: Personnel treating NNIP infestations will take appropriate measures to prevent transporting seeds or other propagules to other sites. Such measures may include cleaning equipment at the treatment site after treatment, bagging the equipment until such time that it can be cleaned (e.g. hand sprayers), removing and bagging outer garments after treatment, brushing clothing and boots thoroughly before departing the treatment site.

FW – 99: Fueling or oiling of mechanical equipment will occur away from aquatic habitat.

FW – 100: When NNIP control work is conducted in areas containing TESLR plant species, those plants will be flagged, marked or identified for applicators to avoid spraying. A physical barrier will be used to protect non-target species when they occur immediately adjacent to the treatment area.

RECREATION: SCENERY

FW – 188: During temporary or permanent road construction, eliminate or remove from view, slash and root wads as viewed from the immediate foreground of High and Moderate SIO viewing platforms to the extent possible. Some slash may be aligned parallel to roads at the base of fill slopes to collect silt.

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GWNF FORESTWIDE STANDARDS

ROCKINGHAM COUNTY, VIRGINIA

SHEET 4B

PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 10/13/2020
REVISIONS: NONE

TIMBER MAT (1 of 5)

ATTACHMENT. II
MAT Specifications & Dimensions

3 Ply Laminated Mat 8' x 14'

- 2" x 8" oak boards; rough cut
- Top – (9) 14' boards equally spaced
- Middle – (15) 8' boards equally spaced
- Bottom – (9) 14' boards equally spaced
- (95) 3/8" bolts w/flange nut; bolts flush with nut or can be countersunk
- (2) 3/8" hoist chains
- *See Exhibit "Dominion 3 Ply Spec/Bolt Pattern"

2 Ply Laminated Mat 8' x 14'

- 2" x 8" oak boards; rough cut
- Top – (9) 14' boards equally spaced
- Bottom – (9) 8' boards equally spaced
- (77) 3/8" bolts w/flange nut; bolts flush with nut or can be countersunk
- Hoist chains not required
- *See Exhibit "Dominion 2 Ply Spec/Bolt Pattern"

Crane Mats 12"4' x 12' and 12" 4'x8'

1220 Crane Mat Specification

- (4) 12"x 12" Solid Oak stock 20' long
- Bolted together with 1" steel threaded rod; recessed with nut and washer; end rods to be 12-14 inches from end with remaining rods equal distant.
- *See Exhibit "Dominion Crane Mat Spec and Pattern"

820 Crane Mat Specification

- (4) 8"x 8" Solid Oak stock 20' long
- Bolted together with 1" steel threaded rod; recessed with nut and washer; end rods to be 12-14 inches from end with remaining rods equal distant.
- *See Exhibit "Dominion Crane Mat Spec and Pattern"

***** Mats to be designed using Dominion's standard specification, See Material Specs And Requirements per Attachment II .**

***** ALL boards shall be solid OAK and no mixed hardwood will be accepted for Mat Materials regarding this bid.**

1

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
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SHEET 6A

PROJECT MANAGER: KA
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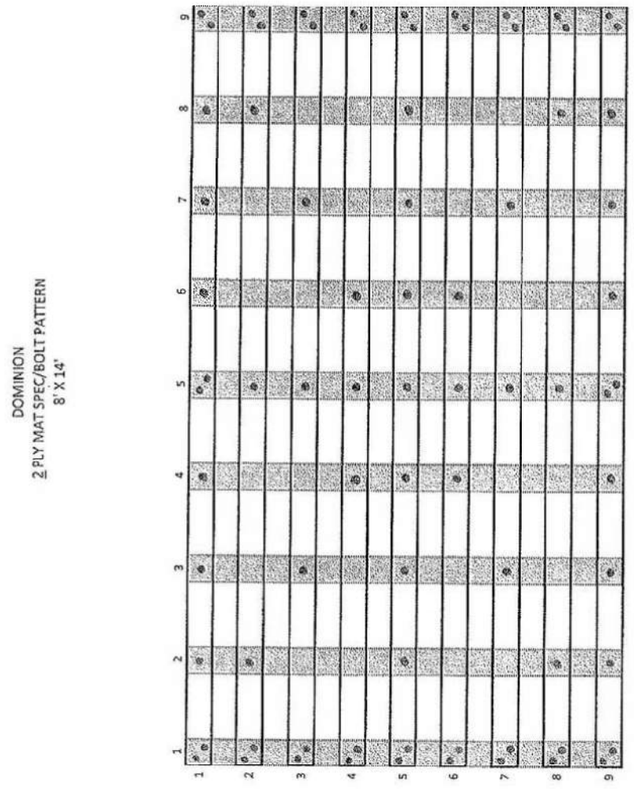
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

TIMBER MAT (2 of 5)



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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
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SHEET 6B

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DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
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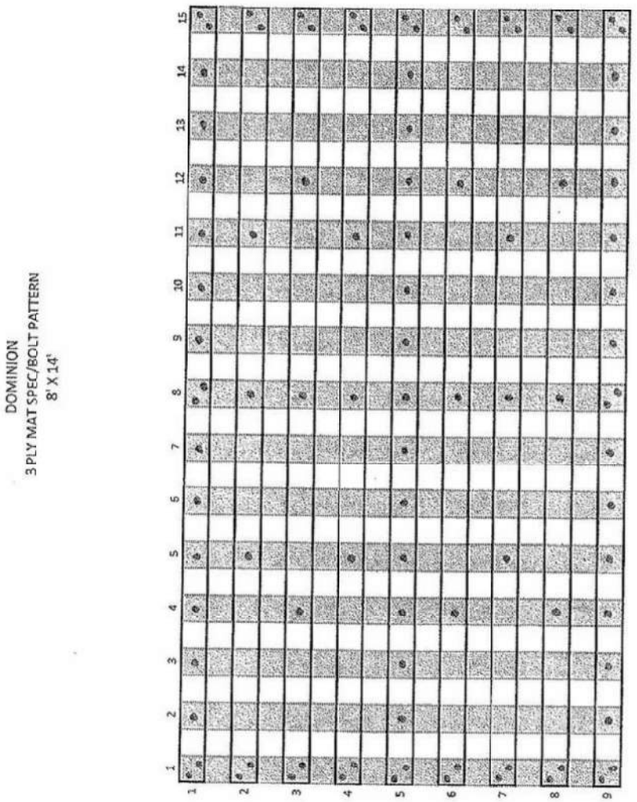
TIMBER MAT (3 of 5)



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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
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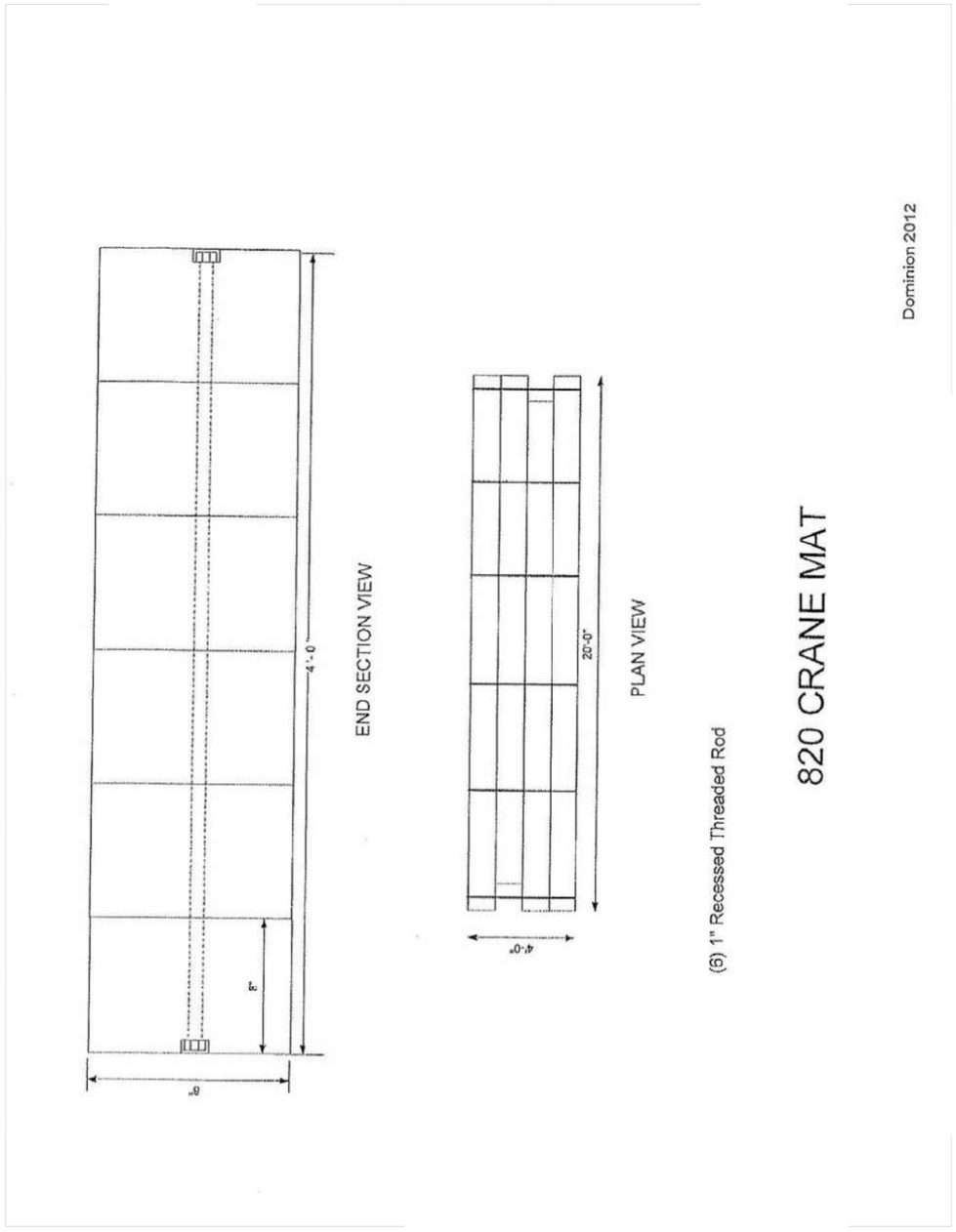
SHEET 6C

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

TIMBER MAT (4 of 5)



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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
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SHEET 6D

PROJECT MANAGER: KA
DRAWN: TB
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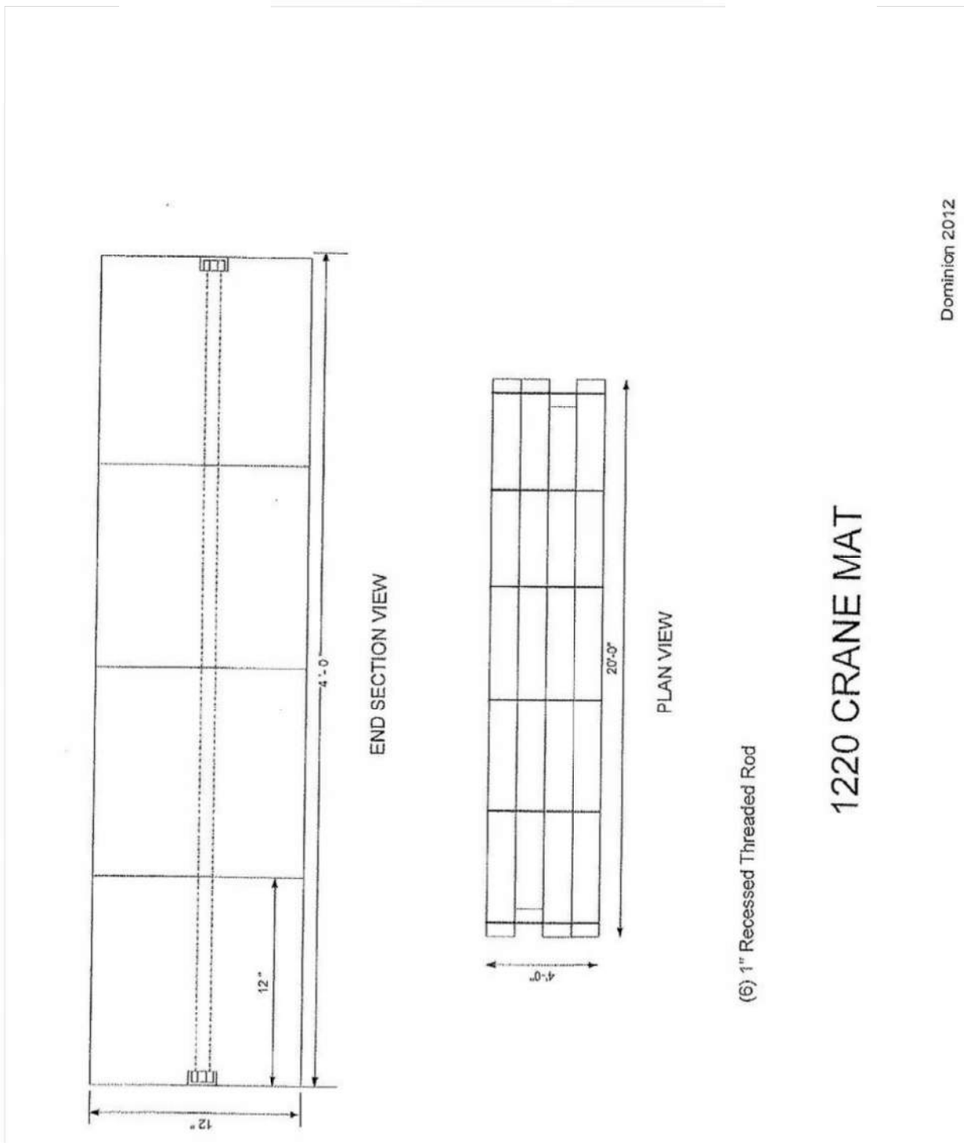
REVISIONS: NONE

TIMBER MAT (5 of 5)



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PROJECT: TL 550 PHASE 3
APPLICANT: DOMINION ENERGY

ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6E

PROJECT MANAGER: KA
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JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

filtrexx®
SUSTAINABLE TECHNOLOGIES

SECTION 1: CONSTRUCTION

SWPPP CUT SHEET

Filtrexx® Sediment/Perimeter Control (SiltSoxx™)

PURPOSE & DESCRIPTION

Filtrexx® SiltSoxx™ is a three-dimensional tubular sediment control and stormwater runoff filtration device typically used for **Sediment/Perimeter Control** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities.

APPLICATION

Perimeter control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Perimeter control is effective when installed perpendicular to sheet or low concentrated flow, and in areas that silt fence is normally considered appropriate. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Along the toe of stream and channel banks
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation
- On frozen ground where trenching of silt fence is impossible
- On paved surfaces where trenching of silt fence is impossible

INSTALLATION

1. Perimeter control used for control of sediment and soluble pollutants in storm runoff shall meet Filtrexx®Soxx™ Material Specifications and use Filtrexx® Certified℠ FilterMedia™.
2. Contractor is required to be Filtrexx Certified or use pre-filled Filtrexx® SiltSoxx™ products manufactured by a Filtrexx Certified Manufacturer as determined by Filtrexx International (call Filtrexx at 877-542-7699 for a current list of installers). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application Look for the Filtrexx Certified Seal.
3. Perimeter control will be placed at locations indicated on plans and in a manner as directed by the Engineer or Manufacturer.
4. Perimeter control should be installed parallel to the base of the slope or other disturbed area. In challenging conditions (i.e., 2:1 slopes), a second perimeter control shall be constructed at the top of the slope, or staking may be increased.
5. Effective Soxx height in the field should be as follows: 5" diameter Soxx = 4" high; 8" diameter Soxx = 6.5" high; 12" diameter Soxx = 9.5" high; 18" diameter Soxx = 14.5" high; 24" diameter Soxx = 19" high.
6. Stakes should be installed through the middle of the perimeter control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. In the event staking is not possible, i.e., when perimeter control is used on pavement, heavy concrete blocks shall be used behind the perimeter control to help stabilize during rainfall/runoff events.
7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
8. Loose compost may be backfilled along the upslope side of the perimeter control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
9. If the perimeter control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The Engineer will specify seed requirements.
10. Perimeter control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct installation (Figure 1.1).

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6F

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

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INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Perimeter control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional perimeter control may be required to reduce effective slope length or sediment removal may be necessary. Perimeter control shall be inspected until area above has been permanently stabilized and construction activity has ceased.

1. The Contractor shall maintain the perimeter control in a functional condition at all times and it shall be routinely inspected.
2. If the perimeter control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove perimeter at the base of the upslope side of the perimeter control when accumulation has reached 1/2 of the effective height of the Soxx™, or as directed by the Engineer. Alternatively, a new perimeter control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Perimeter control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, perimeter control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at www.filtrexx.com

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61 N Clev-Mass Rd, Ste E, Akron, OH 44333
877-542-7699 | 234-466-0810 (fax)
www.filtrexx.com | info@filtrexx.com
Call for complete list of international installers.

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 66

PROJECT MANAGER: KA
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DATE EXPORTED: 07/10/2020
REVISIONS: NONE

Table 1.3. Maximum Slope Lengths for Filtrexx® Perimeter Control Based on a 1 in (25 mm)/24 hr Rainfall Event.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*					
	5 in (125 mm) Sediment control	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	4 in (100 mm)**	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	360 (110)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	240 (73)	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	120 (37)	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	85 (26)	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	60 (18)	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	48 (15)	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	36 (11)	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	36 (11)	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	36 (11)	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	24 (7)	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	24 (7)	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of perimeter control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

** Effective height of perimeter control after installation and with constant head from runoff as determined by Ohio State University.

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
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SHEET 6H

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JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

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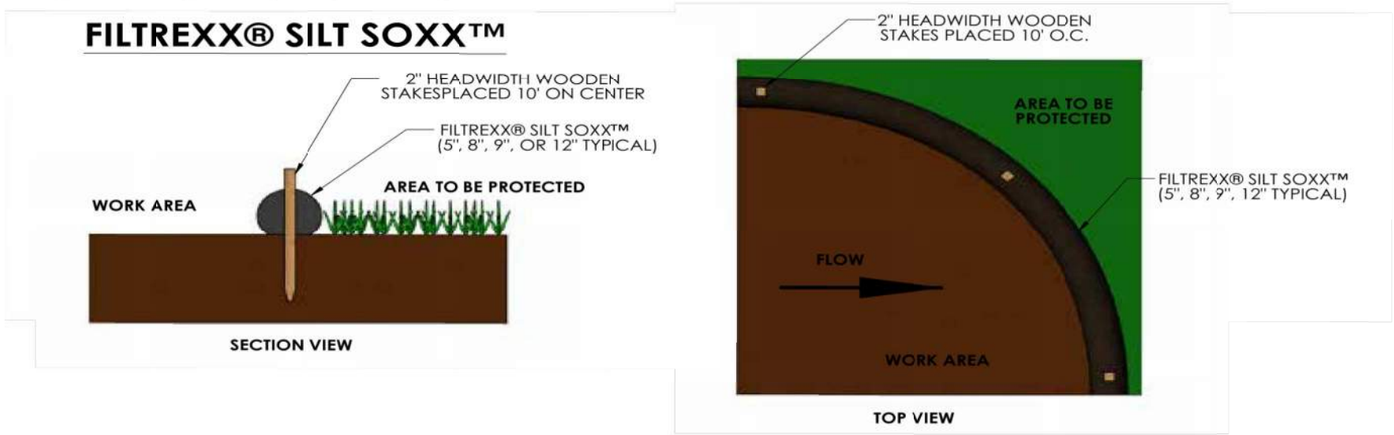
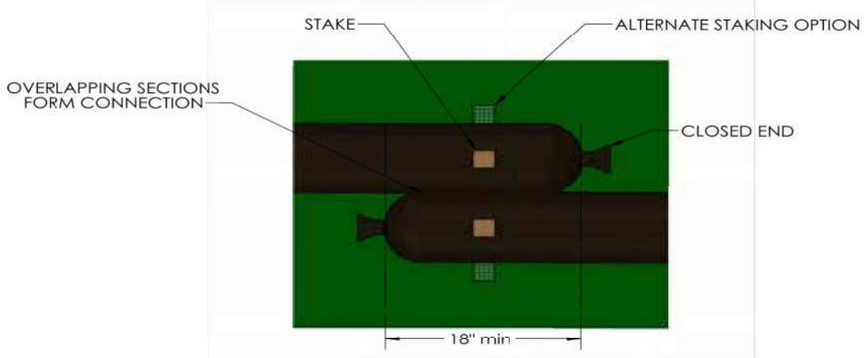
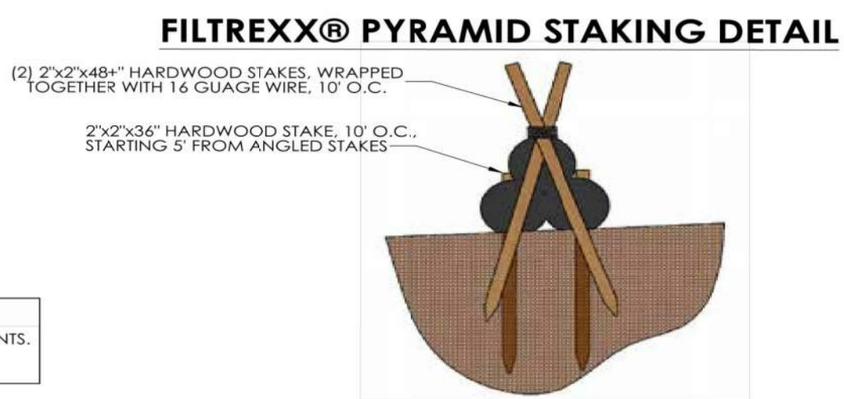
Figure 1.1. Engineering Design Drawing for Perimeter Control







NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

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ESC TYPICALS

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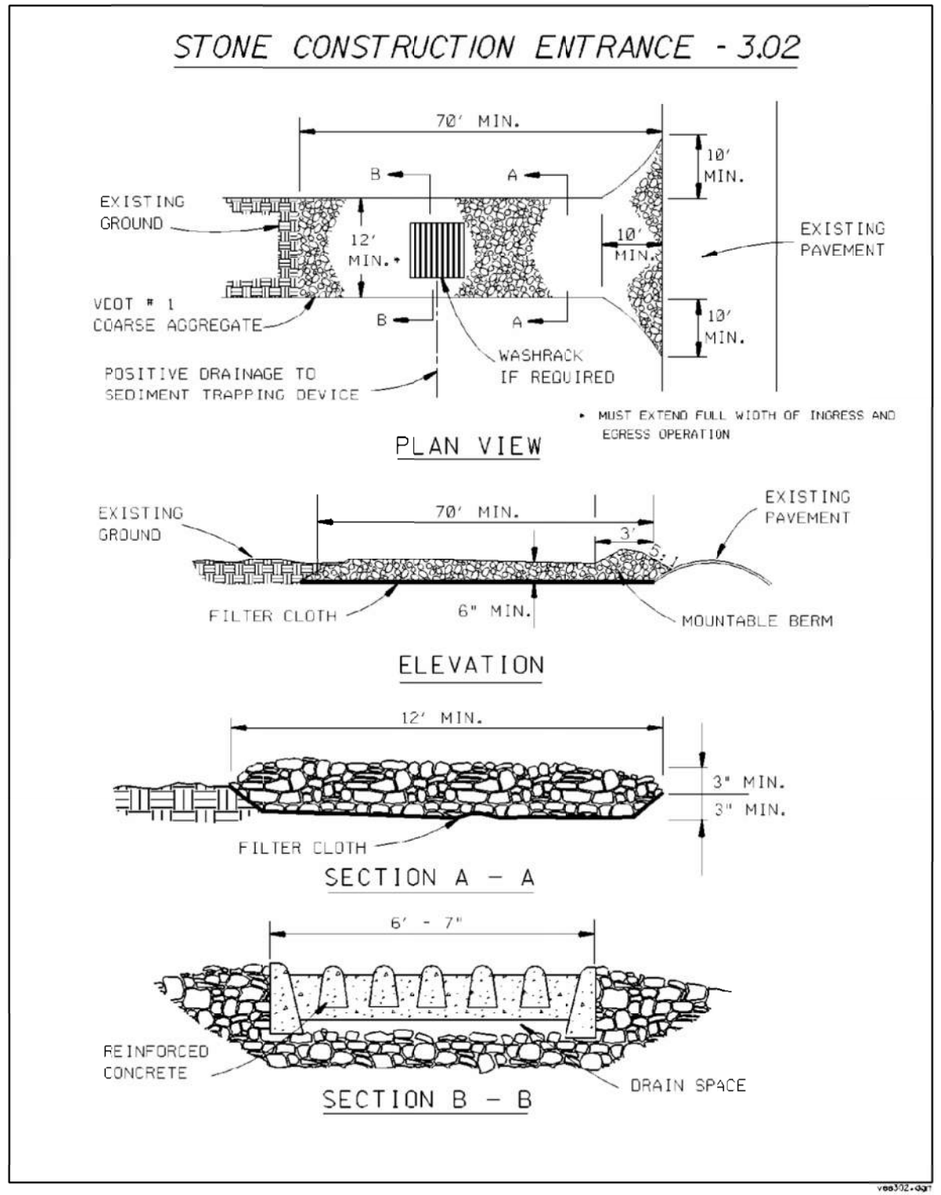
SHEET 61

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

3.02 CONSTRUCTION ENTRANCE



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ESC TYPICALS

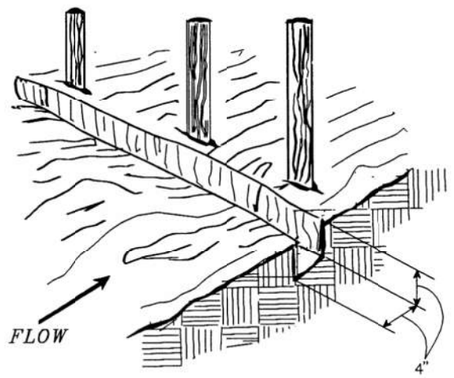
PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6J

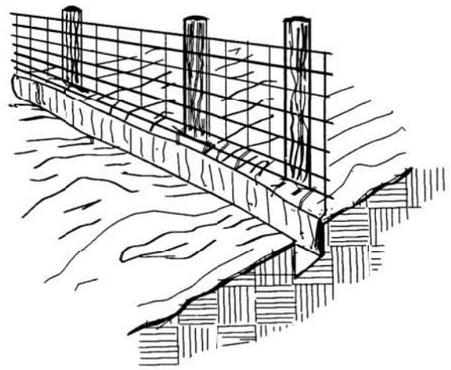
PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

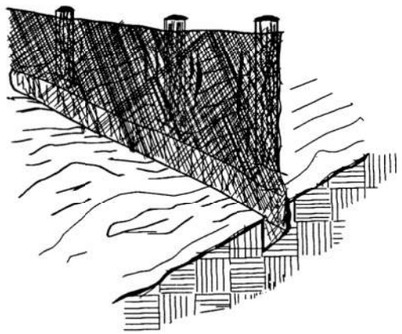
1. SET POSTS AND EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.



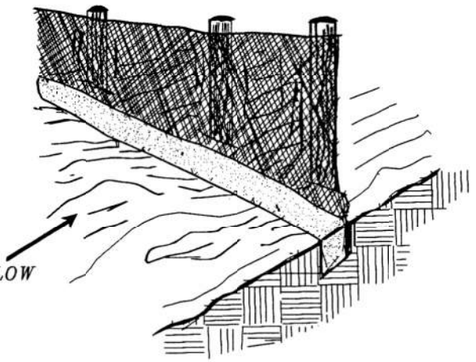
2. STAPLE WIRE FENCING TO THE POSTS.



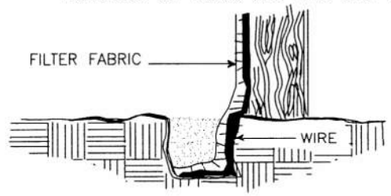
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Plate 3.05-1

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ESC TYPICALS

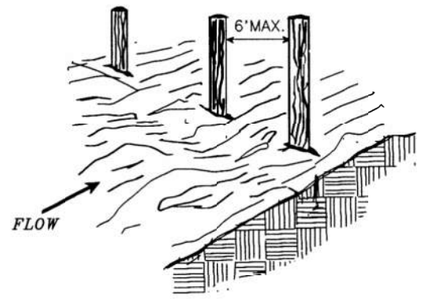
PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6K

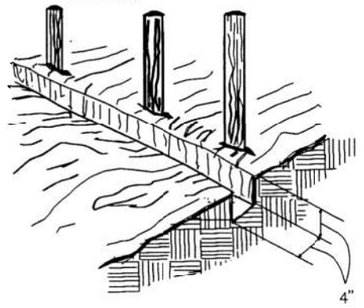
PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

1. SET THE STAKES.

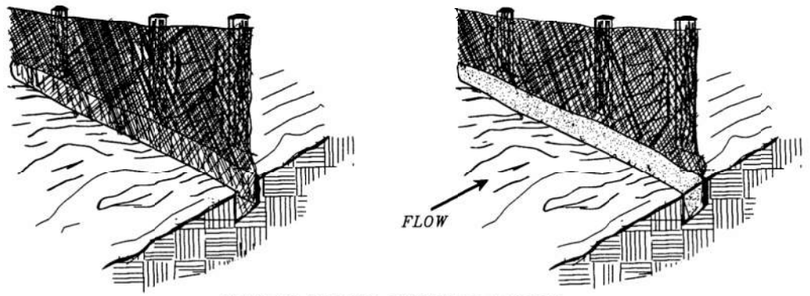


2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.

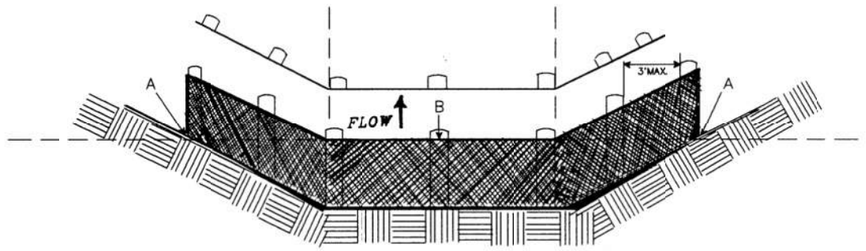


3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)



POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Plate 3.05-2

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ESC TYPICALS

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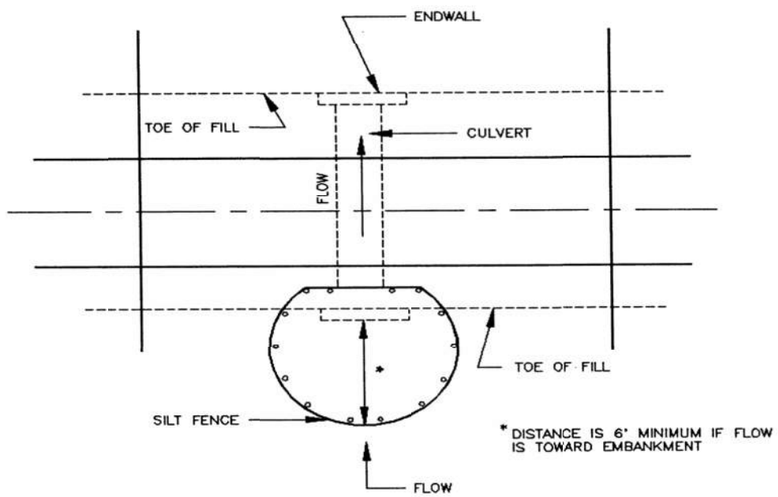
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6L

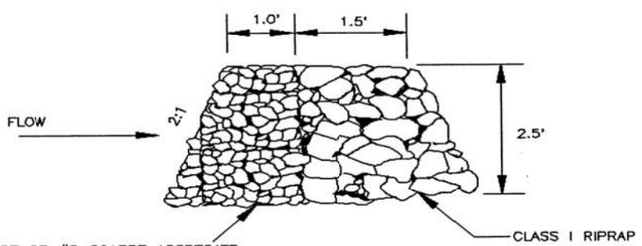
PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

3.08 TEMPORARY CULVERT INLET PROTECTION

SILT FENCE CULVERT INLET PROTECTION



OPTIONAL STONE COMBINATION **



** VDOT #3, #357 OR #5 COARSE AGGREGATE TO REPLACE SILT FENCE IN " HORSESHOE " WHEN HIGH VELOCITY OF FLOW IS EXPECTED

Source: Adapted from VDOT Standard Sheets and Va. DSWC

Plate 3.08-1

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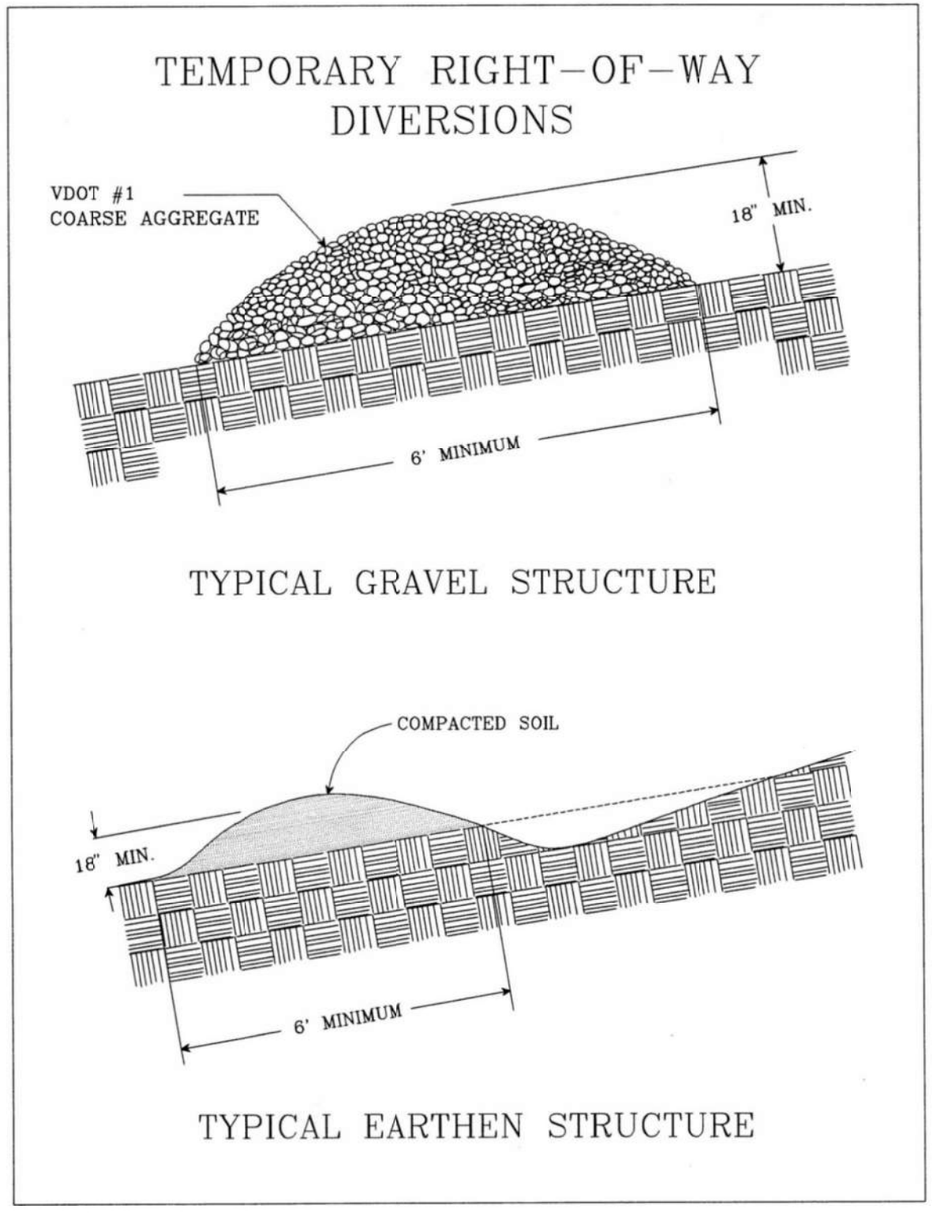
ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6M

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

3.11 TEMPORARY RIGHT-OF-WAY DIVERSION



res
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P: 713.520.5400
Dominion Energy®

PROJECT: TL 550 PHASE 3
APPLICANT: DOMINION ENERGY

ESC TYPICALS

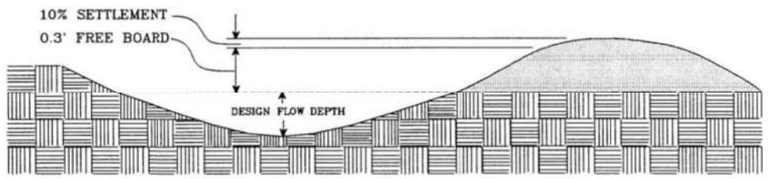
PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6N

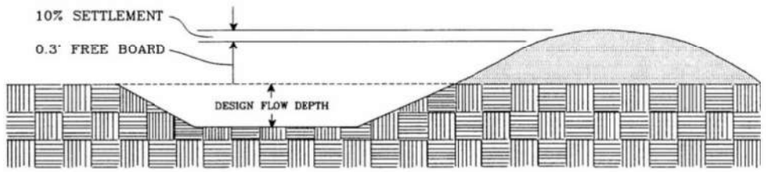
PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

3.12 DIVERSION

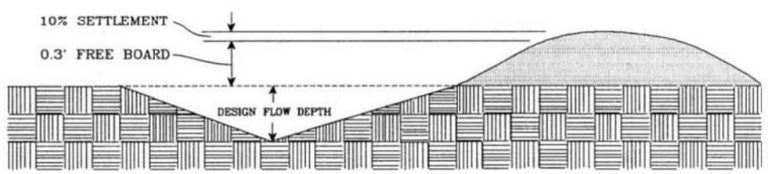
DIVERSIONS



TYPICAL PARABOLIC DIVERSION



TYPICAL TRAPEZOIDAL DIVERSION



TYPICAL VEE-SHAPED DIVERSION

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 60

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

3.12 DIVERSION

TABLE 3.11-A

SPACING OF RIGHT-OF-WAY DIVERSIONS

% Slope	Spacing (ft.)
Less than 7%	100
Between 7% and 25%	75
Between 25% and 40%	50
Greater than 40%	25

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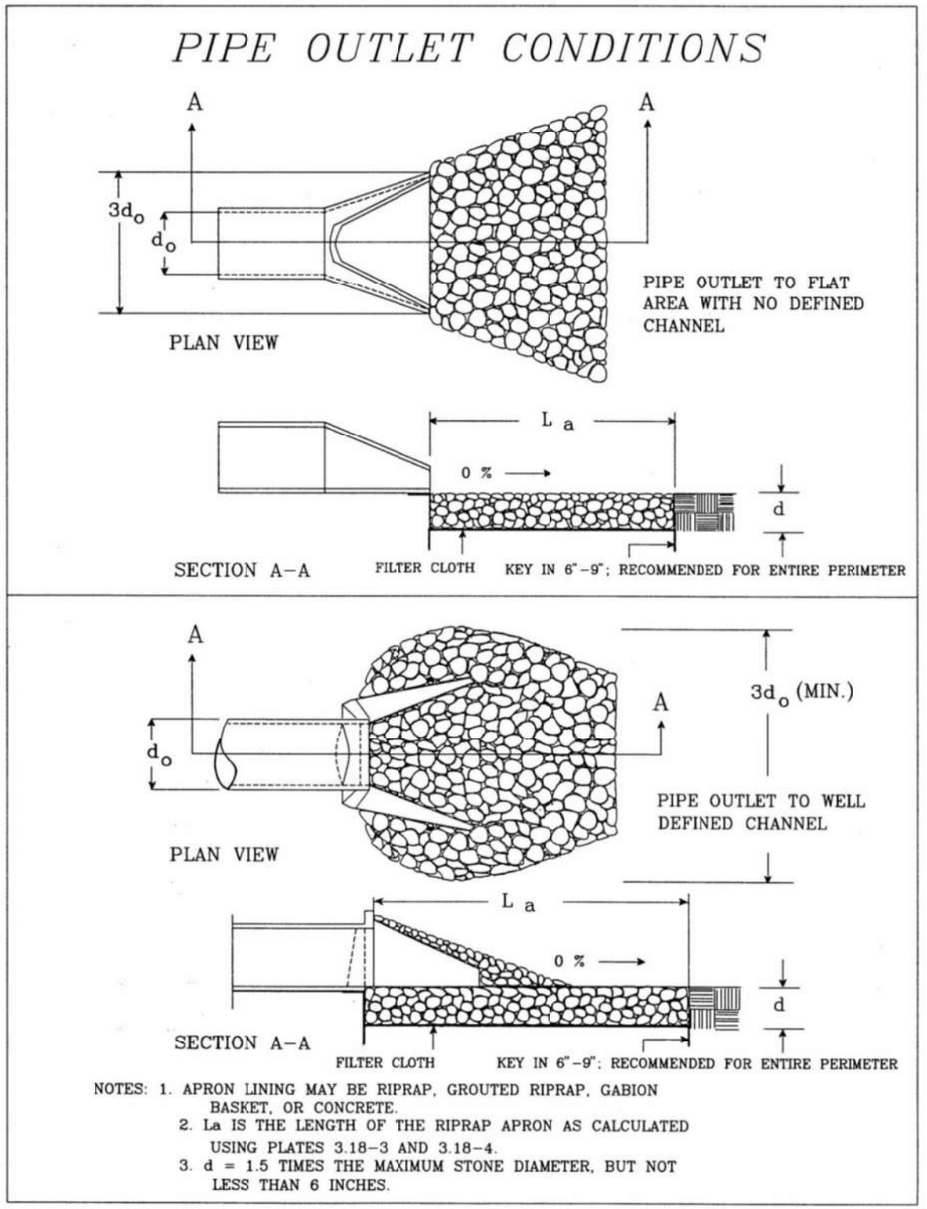
SHEET 6P

PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

3.18 OUTLET PROTECTION



NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18–3 AND 3.18–4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

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SHEET 6Q

PROJECT MANAGER: KA
DRAWN: TB
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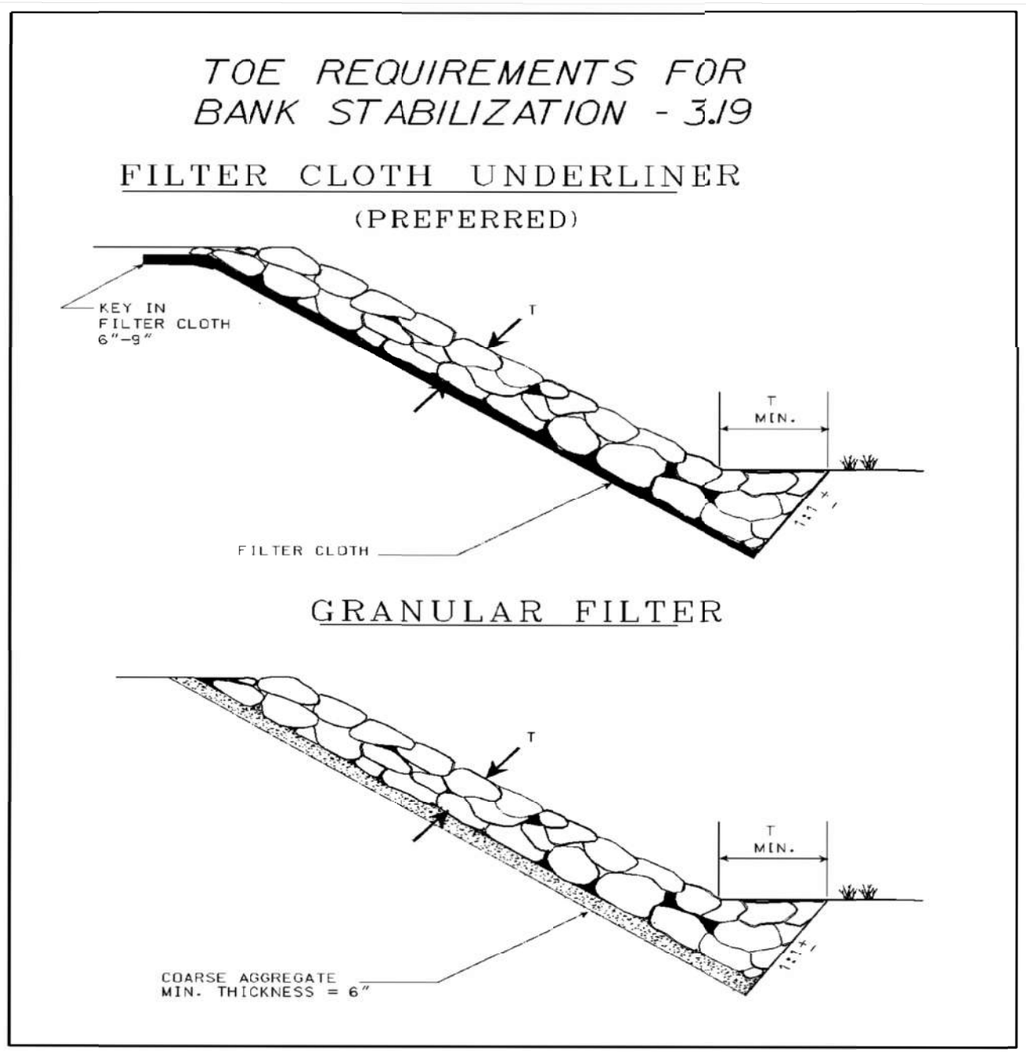
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

3.19 RIPRAP



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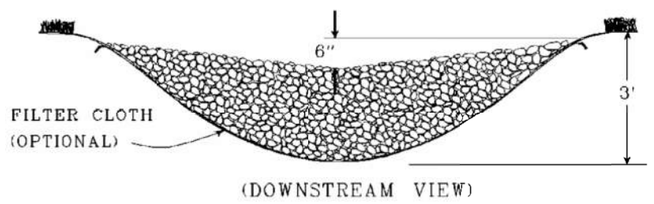
SHEET 6R

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

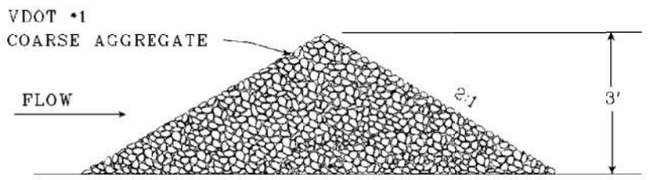
3.20 ROCK CHECK DAMS

ROCK CHECK DAM - 3.20

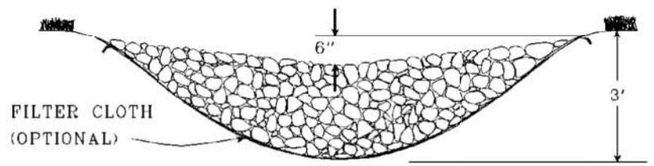
2 ACRES OR LESS OF DRAINAGE AREA:



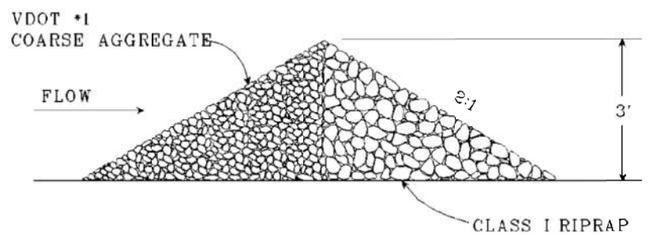
(DOWNSTREAM VIEW)



2-10 ACRES OF DRAINAGE AREA:



(DOWNSTREAM VIEW)



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APPLICANT: DOMINION ENERGY

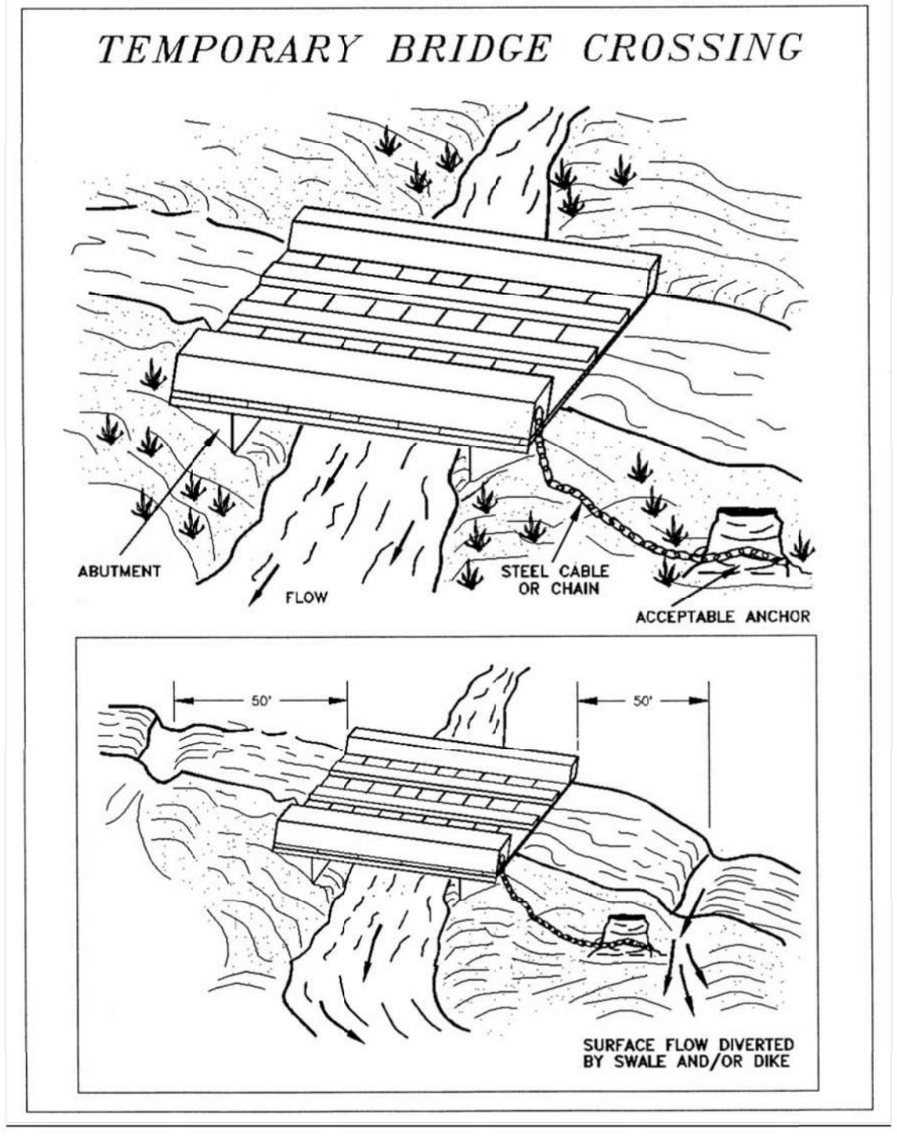
ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 65

PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

3.24 TEMPORARY VEHICULAR STREAM CROSSING



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SHEET 6T

PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

TABLE 3.35-A

ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES:		NOTES:
	Per Acre	Per 1000 sq. ft.	
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

Source: Va. DSWC

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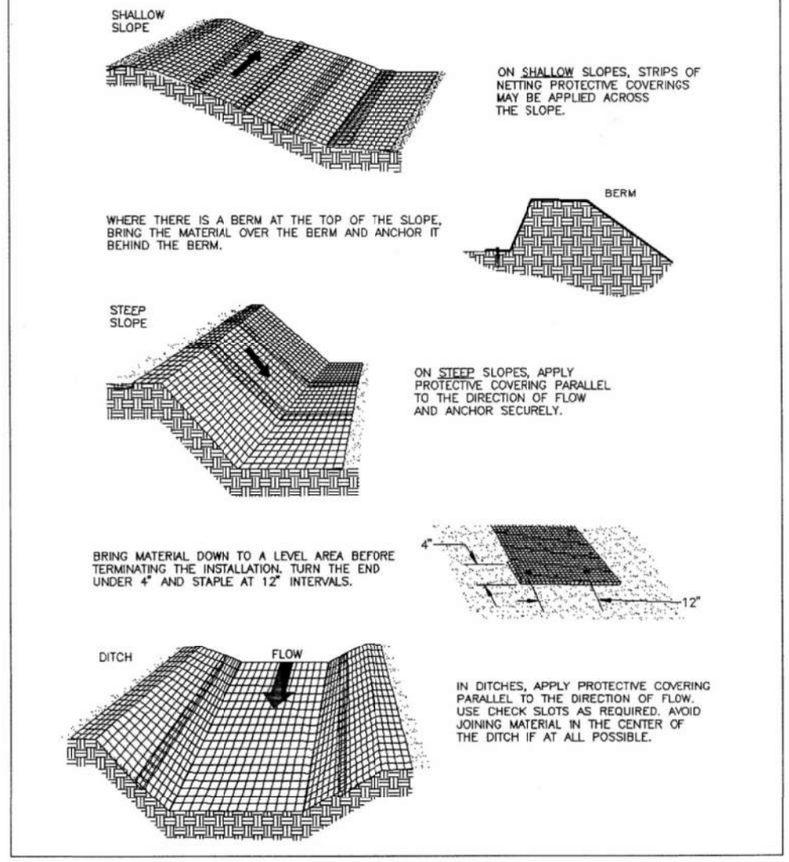
PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6U

PROJECT MANAGER: KA
DRAWN: TB
JOB NUMBER: 5641.48
DATE EXPORTED: 07/10/2020
REVISIONS: NONE

3.36 SOIL STABILIZATION BLANKETS AND MATTING

TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)



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PENDLETON COUNTY, WEST VIRGINIA
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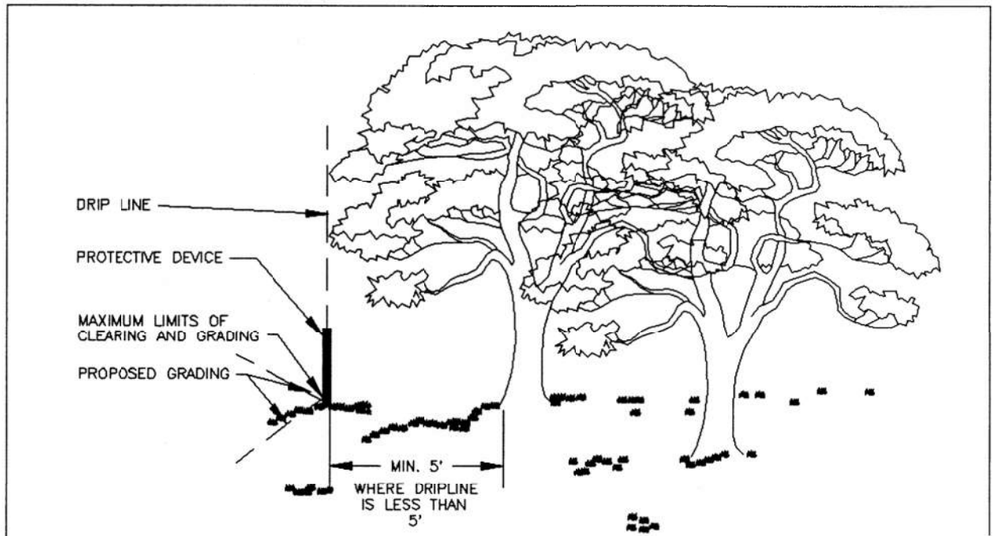
SHEET 6V

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

3.38 TREE PRESERVATION AND PROTECTION



CONSTRUCTION OPERATIONS RELATIVE
TO THE LOCATION OF PROTECTED TREES

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ESC TYPICALS

PENDLETON COUNTY, WEST VIRGINIA
ROCKINGHAM COUNTY, VIRGINIA

SHEET 6W

PROJECT MANAGER:	KA
DRAWN:	TB
JOB NUMBER:	5641.48
DATE EXPORTED:	07/10/2020
REVISIONS:	NONE

DOMINION ENERGY SITE PREPARATION PERFORMANCE SPECIFICATIONS - VIRGINIA

PREFACE

IT IS THE INTENT OF THESE SPECIFICATIONS TO HAVE A COMPLETELY PREPARED SITE FOR THE CONSTRUCTION OF AN ELECTRICAL FACILITY AT THE COMPLETION OF THE "WORK" AS INDICATED ON THE DRAWINGS, SPECIFICATIONS, OR OTHER DOCUMENTS PROVIDED.

THE REGULATIONS OF ALL LOCAL, STATE, OR FEDERAL GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE WORKING AREAS SHALL BE OBSERVED AT ALL TIMES.

ANY SPECIFICATIONS OR INSTRUCTIONS APPEARING ON THE DRAWINGS SHALL HAVE PRECEDENCE OVER THE WRITTEN SPECIFICATIONS WHICH APPEAR HEREIN. IN THE EVENT THAT A DISCREPANCY OR OMISSION HAS OCCURRED, DOMINION SHALL BE CONSULTED FOR RESOLUTIONS.

ALL "WORK" SHALL BE PERFORMED IN A MANNER CONSISTENT WITH THE BEST PRACTICES OF THE TRADES INVOLVED.

ALL "WORK" SHALL BE PERFORMED WITHIN THE LIMITS OF THE PROPERTY / RIGHTS-OF-WAY SHOWN ON THE DRAWINGS. THE CONTRACTOR WILL RECOGNIZE AND ABIDE BY ALL TERMS AND CONDITIONS OF PERMITS, EASEMENTS, AND AGREEMENTS RELATING TO THE PROJECT.

CLEARING AND GRUBBING

LIMITS FOR CLEARING AND/OR GRUBBING SHALL BE AS DEFINED ON THE DRAWINGS.

CLEARING SHALL CONSIST OF REMOVAL AND DISPOSAL OF BRUSH, DOWNED TIMBER, LOGS, STANDING TREES AND SNAGS, OTHER GROWTH AND ANY ITEMS THAT WOULD INTERFERE WITH CONSTRUCTION OPERATIONS.

GRUBBING SHALL CONSIST OF REMOVAL AND DISPOSAL OF STUMPS, BURIED LOGS, ROOTS GREATER THAN ½ " DIAMETER, AND ANY OTHER ORGANIC MATERIAL BELOW THE GROUND SURFACE. ALL CLEARED AREAS WILL BE GRUBBED UNLESS OTHERWISE NOTED.

DISPOSAL OF CLEARED/GRUBBED MATERIAL BY BURNING SHALL ONLY BE USED WHEN WRITTEN APPROVAL IS OBTAINED FROM LOCAL AUTHORITIES AND DOMINION. OTHERWISE, DISPOSAL SHALL BE BY METHODS APPROVED BY THE GWNF OR OUTSIDE THE LIMITS OF GWNF LAND.

PER THE PROJECT'S ENVIRONMENTAL ASSESSMENT:
WITHIN THE ROW, AT CRANE PAD SITES OUTSIDE THE ROW, AND WITHIN THE ROW TO ACCOMMODATE NERC CONDUCTOR-TO-GROUND CLEARANCE STANDARDS: TREES ARE FELLED, TRIMMED AS NEEDED, MOVED AWAY FROM THE CLEARED AREA, AND LEFT ON SITE.

TREE CLEARING FOR CONSTRUCTION OF TEMPORARY OR PERMANENT ROADS: TREES ARE FELLED, TRIMMED AS NEEDED, AND EITHER LEFT IN PLACE BELOW THE ROAD OR CHIPPED. TREES WITH DBH LESS THAN 7 INCHES ARE CHIPPED AND SCATTERED INTO THE WOODS TO A DEPTH OF NO MORE THAN 2 INCHES TO PREVENT A MULCHING EFFECT.

TREE CLEARING FOR CONSTRUCTION OF TEMPORARY AND PERMANENT ROADS, WITHIN THE SHENANDOAH MOUNTAIN CREST (MA 8E7) AND ADJACENT WETLANDS, RIPARIAN AREAS, OR KNOWN LOCATIONS OF THREATENED, ENDANGERED, OR SENSITIVE SPECIES: TREES ARE FELLED, TRIMMED AS NEEDED, MOVED AWAY FROM THE CLEARED AREA, AND LEFT ON SITE. NO CHIPPING OR SPREADING OF CHIPS IS PERMITTED WITHIN THESE SENSITIVE AREAS.

TOPSOIL

ALL TOPSOIL AND SURFACE SOILS CONTAINING ORGANIC MATERIAL SHALL BE REMOVED FROM THE GRUBBED AREA. TOPSOIL SHALL BE STOCKPILED FOR FUTURE USE IN APPROVED LOCATIONS UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

TOPSOIL SHALL NOT BE USED AS, OR MIXED WITH, FILL MATERIAL IN THE CONSTRUCTION OF EARTH EMBANKMENTS UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

TOPSOIL MATERIAL USED AS A SURFACE DRESSING SHALL BE REASONABLY FREE OF CINDERS, DEBRIS, AND STONES. UNSUITABLE AND EXCESS TOPSOIL MATERIAL SHALL BE DISPOSED OFFSITE.

EARTHWORK

EXCAVATION : EXCAVATION SHALL BE ACCOMPLISHED BY CUTTING ACCURATELY TO THE CROSS SECTIONS, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS.

SOFT, UNSTABLE, OR OTHERWISE UNSATISFACTORY MATERIALS ENCOUNTERED AT THE REQUIRED GRADES SHALL BE REMOVED AS DIRECTED AND REPLACED WITH APPROVED, PROPERLY COMPACTED MATERIAL.

COMMON EXCAVATION SHALL INCLUDE ALL MATERIAL WHICH CAN BE REMOVED BY COMMON EARTH EXCAVATION EQUIPMENT, OTHER THAN SOLID ROCK OR BOULDERS AND DETACHED PIECES OF ROCK, EACH EXCEEDING 2 CUBIC YARDS IN VOLUME.

ROCK EXCAVATION SHALL BE MATERIAL WHICH REQUIRES THE USE OF PNEUMATIC HAMMERS AND/OR EXPLOSIVES FOR REMOVAL.

SITE PREPARATION : IF EARTHWORK OPERATIONS ARE PERFORMED DURING WET SEASONS, CONTRACTOR SHALL AVOID OPERATING EQUIPMENT ON SATURATED SOILS. ANY WET SUBGRADE AREAS WHICH RECEIVE COMPACTED FILL SHALL BE DRAINED AND ALLOWED TO DRY.
THE EXPOSED SUBGRADES OF THE BUILDING PAD AND ROADBEDS SHALL BE PROOFROLLED TO DETECT UNSUITABLE SOIL CONDITIONS. PROOFROLLING SHALL BE DONE AFTER A SUITABLE PERIOD OF DRY WEATHER TO AVOID DEGRADING THE SUBGRADE. PROOFROLLING SHALL BE PERFORMED WITH A HEAVILY LOADED DUMP TRUCK OR WITH SIMILAR APPROVED CONSTRUCTION EQUIPMENT.
SOFT MATERIALS ENCOUNTERED SHALL BE COMPLETELY EXCAVATED AND REPLACED WITH APPROVED FILL MATERIALS.

BENCHING : BENCHING SHALL CONSIST OF A SERIES OF HORIZONTAL CUTS BEGINNING AT THE TOE OF THE EXISTING SLOPED SURFACE AND CONTINUING AT EACH VERTICAL INTERSECTION OF THE PREVIOUS CUT. SATISFACTORY MATERIAL REMOVED DURING THIS OPERATION SHALL BE RECOMPACTED ALONG WITH THE NEW EMBANKMENT MATERIAL AS GENERALLY SPECIFIED, EXCEPT MOISTURE CONTENT SHALL BE MAINTAINED WITHIN 10 PERCENT OF THE OPTIMUM.
BENCHING SHALL BE REQUIRED FOR ALL FILL EMBANKMENTS PLACED ON EXISTING SLOPES AS FOLLOWS :

SLOPES STEEPER THAN 4:1 BUT NOT STEEPER THAN 1½ :1, THE BENCH SHALL BE AT LEAST 6 FT. IN WIDTH.

EMBANKMENT : EMBANKMENT WORK SHALL CONSIST OF THE PLACEMENT AND COMPACTION OF FILL MATERIAL ABOVE THE NATURAL GROUND OR OTHER SURFACE IN CONFORMANCE WITH THE DRAWINGS.

MATERIALS : APPROVED SOILS USED IN COMPACTED FILLS SHALL BE FREE OF DEBRIS AND FIBROUS ORGANIC MATERIAL. FROZEN MATERIAL WILL NOT BE PERMITTED IN THE FILL. SATISFACTORY MATERIALS SHALL COMPRISE THOSE CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL SYSTEM, ASTM D-2487 AS GW, GP, SW, SP, SM, AND SC. THESE MATERIALS SHALL POSSESS A MAXIMUM DRY DENSITY OF 100 #/CU.FT. OR GREATER REFERENCED TO ASTM D-698 STANDARD PROCTOR. SOILS SHALL HAVE A LIQUID LIMIT LESS THAN 40 PERCENT AND A PLASTICITY INDEX LESS THAN 15.
OTHER MATERIALS, WHEN APPROVED BY ENGINEERING, MAY BE PERMITTED IN FILL AREAS.
UNSATISFACTORY SOILS INCLUDE THOSE CLASSIFIED AS PT, OH OR OL, CH, MH, CL AND ML, AS REFERENCED TO ASTM D-2487.

COMPACTION : COMPACTION EQUIPMENT SHALL CONSIST OF VIBRATORY OR TAMPING ROLLERS, SHEEPSFOOT ROLLER, PNUEMATIC-TIRED ROLLERS, THREE-WHEEL POWER ROLLERS, WALK BEHIND VIBRATORY ROLLERS, VIBRATORY PLATE OR OTHER APPROVED EQUIPMENT WELL SUITED TO THE SOIL BEING COMPACTED.
APPROVED FILL MATERIAL SHALL BE PLACED IN UNIFORM HORIZONTAL LIFTS OF APPROXIMATELY 8" DEPTH (LOOSE MEASUREMENT), EXCEPT FOR ROAD MATERIALS ABOVE SUBGRADE ELEVATION AND THE UPPER 12" OF BUILDING PADS WHICH REQUIRE 6" LIFTS. WHERE WALK BEHIND ROLLERS AND VIBRATORY PLATE COMPACTORS ARE USED, THE LIFT THICKNESS SHALL NOT EXCEED 4".

EARTHWORK CONT'D

GENERALLY, FILLS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698), WITH MOISTURE CONTENT RANGING BETWEEN LESS THAN 3 PERCENT UP TO THE OPTIMUM AS DETERMINED BY THE PROCTOR DENSITY TEST. THE UPPER 12" OF ROADBEDS AND CONTROL ENCLOSURE BUILDING PADS REQUIRE 98 PERCENT COMPACTION REFERENCED TO ASTM D-698, WITH MOISTURE CONTENT MAINTAINED WITHIN 2 PERCENT OF THE OPTIMUM.
EACH SUCCESSIVE LIFT WILL BE PLACED ON FIRM APPROVED SUBGRADE OR COMPACTED FILL. WHERE PREVIOUS LIFTS ARE FOUND TO BE UNACCEPTABLE, THE AREA WILL BE SCARIFIED, AERATED OR MOISTENED, RECOMPACTED OR REMOVED, AND REPLACED AS REQUIRED.

DRAINAGE : THE FILL SURFACE SHALL BE ADEQUATELY MAINTAINED DURING CONSTRUCTION. THE SURFACE SHALL BE SLOPED TO ACHIEVE SUFFICIENT DRAINAGE, AND TO PREVENT WATER FROM PONDING ON THE FILL. IF PRECIPITATION IS EXPECTED WHILE FILL CONSTRUCTION IS TEMPORARILY HALTED, THE SURFACE SHALL BE ROLLED WITH RUBBER-TIRED OR STEEL-DRUMMED EQUIPMENT TO IMPROVE SURFACE RUNOFF. FOR PLACEMENT DURING OR AFTER DIFFICULT WEATHER CONDITIONS, WET OR FROZEN MATERIAL SHALL BE REMOVED.

FINISHED GRADE TOLERANCES : THE TOP OF EARTHWORK FOR SUBSTATION PAD AND ROADWAY TRAVEL AREAS SHALL BE WITHIN 0.10 FT. ABOVE OR BELOW THE THEORETICAL GRADE.

EARTH SLOPES : EXCAVATED SLOPES STEEPER THAN 3:1 SHALL BE ROUGH GRADED IN A MANNER TO PROVIDE HORIZONTAL RIDGES AND GROOVES HAVING AN AVERAGE DEVIATION NO GREATER THAN 0.75 FT. FROM THE THEORETICAL LINE OF THE TYPICAL CROSS SECTION.

EXCAVATED SLOPES 3:1 OR FLATTER SHALL BE UNIFORMLY FINISHED AND SHALL NOT DEVIATE FROM THE THEORETICAL PLANE SURFACE BY MORE THAN 0.50 FT.

EMBANKMENT SLOPES STEEPER THAN 3:1 SHALL BE ROUGH GRADED IN A MANNER TO PROVIDE HORIZONTAL RIDGES AND GROOVES NOT MORE THAN 0.50 FT. FROM THE THEORETICAL LINE OF THE TYPICAL CROSS SECTION.

EMBANKMENT SLOPES 3:1 OR FLATTER SHALL BE UNIFORMLY FINISHED AND SHALL NOT DEVIATE FROM THE THEORETICAL PLANE SURFACE BY MORE THAN 0.50 FT.

ROCK SLOPES : SHALL NOT DEVIATE FROM A PLANE SURFACE BY MORE THAN 2.0 FT. AND SHALL NOT DEVIATE FROM THEIR THEORETICAL LOCATION BY MORE THAN
2.0 FT. MEASURED ALONG ANY LINE PERPENDICULAR TO THE THEORETICAL SLOPE LINE.

MATERIALS / INSTALLATION

VDOT : ITEMS REFERENCED TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION SHOWN ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THEIR LATEST STANDARDS AND SPECIFICATIONS.

MANUFACTURERS' ITEMS : ITEMS REFERENCED TO SPECIFIC MANUFACTURERS OR BRAND NAMES SHALL BE SUBJECT TO ANY RECOMMENDATIONS OR LIMITATIONS PERTAINING TO THEIR INSTALLATION OR USE.

REQUESTS FOR SUBSTITUTIONS MUST BE APPROVED BY ENGINEERING. SUFFICIENT INFORMATION REGARDING REQUESTS MUST BE RECEIVED BY ENGINEERING 10 DAYS IN ADVANCE OF APPROVAL.

TEMPORARY STREAM CROSSINGS

EXISTING STREAMS SHALL BE CROSSED AS DEPICTED ON PLANS. FORD CROSSINGS WILL EITHER BE BY PRE-FABRICATED STEEL BRIDGES OR LAMINATED EMTEK BRIDGE MATERIAL AS SHOWN ON PLANS. BRIDGE DESIGN PROVIDED BY MANUFACTURER OR OTHERS.
EROSION AND SEDIMENT CONTROL MEASURES (TYP. SILT FENCE WINGWALLS PER DETAIL 9 ON SHEET C7-05) SHALL BE INSTALLED AT TEMPORARY STREAM CROSSINGS TO PREVENT SEDIMENT TRANSPORT TO STREAM.
EXISTING CULVERTS (DAMAGED, CORRODED, OR WITH INSUFFICIENT COVER FOR CONSTRUCTION TRAFFIC) SHALL BE SPANNED WITH TIMBER MAT BRIDGES. APPROXIMATE TIMBER MAT BRIDGE LENGTHS ARE SHOWN ON PLANS. FOR ANY EXISTING CULVERT NOT DEPICTED ON THE PLANS, CONTRACTOR TO DETERMINE REQUIRED TIMBER MAT BRIDGE LENGTH.

Dewberry

Dewberry Engineers Inc.
4805 LAKE BROOK DRIVE
SUITE 200
GLEN ALLEN, VA 23060
804.290.7957 (PHONE)
804.290.7928 (FAX)

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE

No.	DATE	BY	Description
3	07/30/21	ARB	FOR REVIEW
2	06/14/21	ARB	FOR REVIEW
1	02/25/21	ARB	FOR REVIEW
0	02/10/21	ARB	DRAFT FOR REVIEW

REVISIONS

DRAWN BY ARB
APPROVED BY
CHECKED BY KP
DATE 07/30/2021

TITLE

SITE PREPARATION PERFORMANCE SPECIFICATIONS

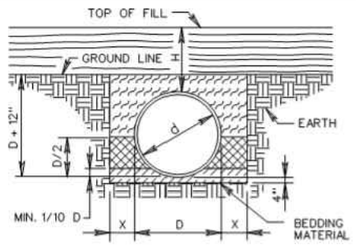
PROJECT NO. 50106442

C7-01

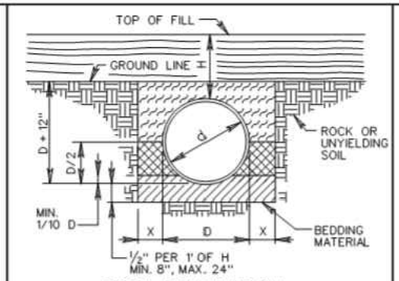
SHEET NO.

PB-1

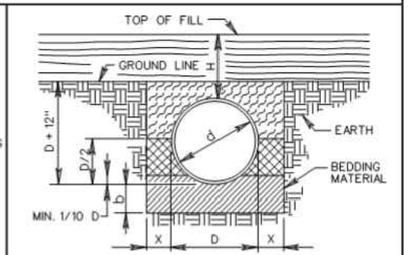
NO PROJECTION OF PIPE ABOVE GROUND LINE



NORMAL EARTH FOUNDATION

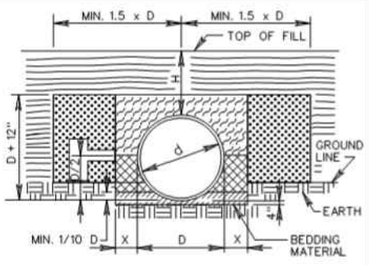


ROCK FOUNDATION

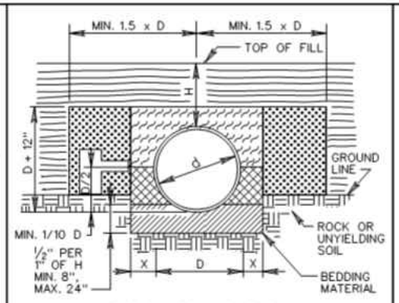


FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

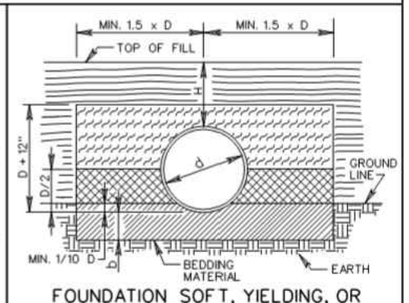
PIPE PROJECTION ABOVE GROUND LINE



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

FOR PLASTIC PIPE CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

FOR ALL OTHER PIPE REGULAR BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

EMBANKMENT

REGULAR BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

NOTES:

FOR GENERAL NOTES ON PIPE BEDDING, SEE INSTALLATION OF PIPE CULVERTS AND STORM SEWERS GENERAL NOTES ON SHEET 107.00.

CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE SIZE 25 AND 26 MAY BE USED IN PLACE OF CLASS I BACKFILL.

VDOT ROAD AND BRIDGE STANDARDS		INSTALL. OF PIPE CULVERTS AND STORM SEWERS CIRC. PIPE BEDDING AND BACKFILL - METHOD "A"	SPECIFICATION REFERENCE
SHEET 1 OF 4	REVISION DATE	VIRGINIA DEPARTMENT OF TRANSPORTATION	302 303
107.01	07/12		

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SCALE

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0	02/10/21	ARB	DRAFT FOR REVIEW

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CHECKED BY KP
DATE 07/30/2021

TITLE

CONSTRUCTION DETAILS

PROJECT NO. 50106442

C7-02

SHEET NO.

PC-1

CORRUGATED ALUMINUM ALLOY PIPE- 2 2/3" x 1/2" CORRUGATIONS

PIPE DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER IN FEET — SHEET THICKNESS IN INCHES (GAUGE) 0.060 (16)	0.075 (14)	0.105 (12)	0.135 (10)	0.164 (8)	MINIMUM SHEET THICKNESS FOR ENTRANCE PIPES WITH LESS THAN 1 FT. COVER (GAUGE)
12	0.8	141	176	247	318	389	16
15	1.2	112	141	197	254	311	16
18	1.8	93	117	164	212	259	16
21	2.4	80	100	140	181	221	16
24	3.1	69	87	123	158	193	16
27	4.0		77	109	140	172	14
30	4.9		69	98	126	154	14
33	5.9		63	88	114	140	14
36	7.1		57	81	105	128	14
42	9.6			69	89	109	12
48	12.6			60	78	95	12
54	15.9			53	69	84	12
60	19.6				61	75	10
66	23.8					68	8
72	28.3					62	8

CORRUGATED ALUMINUM ALLOY PIPE- 3" x 1" CORRUGATIONS

PIPE DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER IN FEET — SHEET THICKNESS IN INCHES (GAUGE) 0.060 (16)	0.075 (14)	0.105 (12)	0.135 (10)	0.164 (8)
36	7.1	52	66	93	126	148
42	9.6	44	56	80	107	127
48	12.6	38	49	69	93	110
54	16.0	34	43	61	83	98
60	19.6	30	38	54	74	87
66	23.8	26	34	49	67	79
72	28.3	24	31	45	61	72
78	33.2		28	41	56	66
84	38.5			37	51	61
90	44.2			34	47	57
96	50.3			32	44	53
102	56.7				41	49
108	63.6				38	46
114	70.9					43
120	78.5					41

NOTES:

1. COVER HEIGHTS INDICATED IN TABLES ARE FOR FINISHED CONSTRUCTION, USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND ASSUMING 25% METAL LOSS AT END OF DESIGN LIFE.
2. TO PROTECT PIPE DURING CONSTRUCTION, MINIMUM HEIGHT OF COVER TO BE IN ACCORDANCE WITH TABLE A PRIOR TO ALLOWING CONSTRUCTION TRAFFIC TO CROSS INSTALLATION. THE COVER SHALL EXTEND THE FULL LENGTH OF THE PIPE. THE APPROACH FILL RAMP IS TO EXTEND A MINIMUM OF 20 DIAMETERS ON EACH SIDE OF THE PIPE OR THE INTERSECTION WITH A CUT.
3. STANDARD MINIMUM FINISHED HEIGHT OF COVER FOR ALL PIPES, EXCEPT THOSE UNDER ENTRANCES, SHALL BE 2.0' OR 1/2 DIAMETER, WHICHEVER IS GREATER. IN CASES IN WHICH THESE COVER HEIGHTS CANNOT BE ACHIEVED, AN ABSOLUTE MINIMUM FINISHED COVER HEIGHT OF 1.0' OR 1/8 DIAMETER, WHICHEVER IS GREATER, WILL BE ALLOWED ONLY IF ALL POSSIBLE MEANS TO OBTAIN THE STANDARD VALUE HAVE BEEN EXHAUSTED. THE MINIMUM FINISHED HEIGHT OF COVER FOR PIPES UNDER ENTRANCES IS 9" FOR PIPE DIAMETERS EQUAL TO OR LESS THAN 18" AND 12" OR 1/8 DIAMETER, WHICHEVER IS GREATER, FOR PIPE DIAMETERS GREATER THAN 18".
4. SEE STANDARD PB-1 FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.

TABLE A	
PIPE DIAMETER	MINIMUM COVER HEIGHT DURING CONSTRUCTION (SEE NOTE 2)
12" TO 27"	18"
30" AND OVER	EQUAL TO DIAMETER

SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.	VDOT ROAD AND BRIDGE STANDARDS
232 302	CORRUGATED ALUMINUM ALLOY PIPE HEIGHT OF COVER TABLE FOR HL-93 LIVE LOAD VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE 11/15 — SHEET 4 OF 18 — 107.08

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0	02/10/21	ARB	DRAFT FOR REVIEW

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CHECKED BY KP
DATE 07/30/2021

TITLE

CONSTRUCTION DETAILS

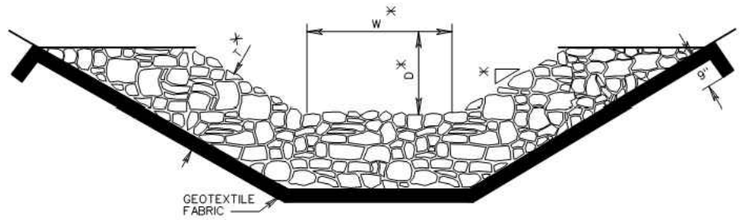
PROJECT NO. 50106442

C7-03

SHEET NO.

2016 ROAD & BRIDGE STANDARDS

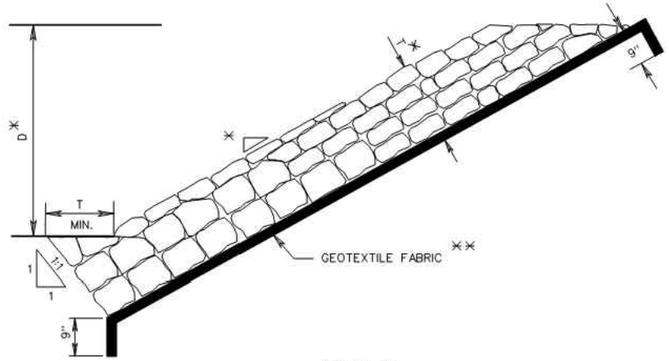
PG-3 PG-3



TYPE I
RIPRAP DITCH PROTECTION

MINIMUM THICKNESS "T"

RIP RAP CLASS	MINIMUM "T"
CLASS AI	20"
CLASS I	26"
CLASS II	38"
CLASS III	53"



TYPE II
RIPRAP SLOPE PROTECTION

NOTES:

** RIP RAP BEDDING MATERIAL

GEOTEXTILE FABRIC TO BE PROVIDED UNDER ALL RIPRAP INSTALLATIONS CLASS AI, CLASS I AND CLASS II UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.

RIPRAP INSTALLATIONS OF CLASS III SHALL HAVE AN INTERMEDIATE AGGREGATE BEDDING LAYER(S) AS SPECIFIED ON THE PLANS BASED ON GEOTECHNICAL RECOMMENDATIONS.

* SEE TYPICAL SECTION SHOWN ON PLANS FOR SIDE SLOPE, BOTTOM WIDTH AND DEPTH OF CHANNEL AND RIPRAP THICKNESS.

VDOT ROAD AND BRIDGE STANDARDS		STANDARD RIP RAP DITCH & SLOPE PROTECTION PG-3 VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE		245 414
109.02			

2016 ROAD & BRIDGE STANDARDS

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CHECKED BY KP
DATE 07/30/2021

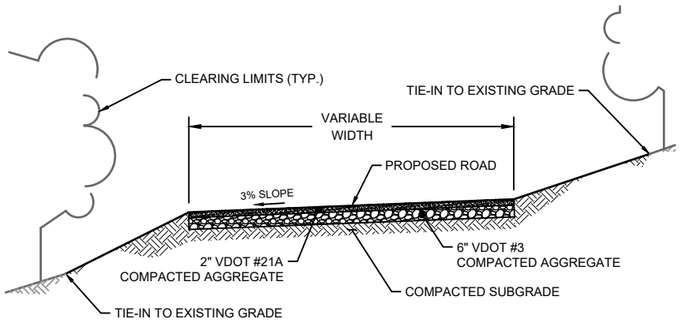
TITLE

CONSTRUCTION DETAILS

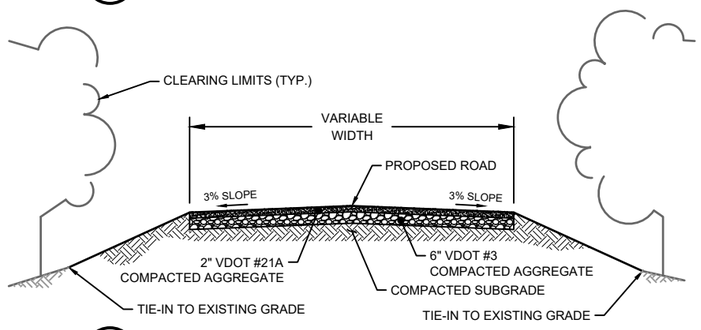
PROJECT NO. 50106442

C7-04

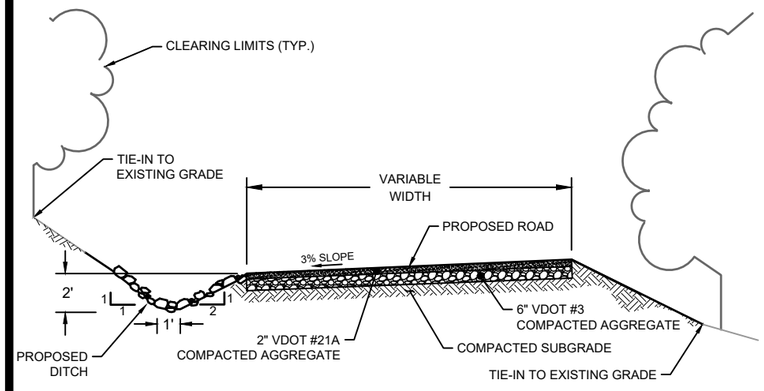
SHEET NO.



1 TYPICAL OUT-SLOPED ROAD CROSS SECTION
N.T.S.

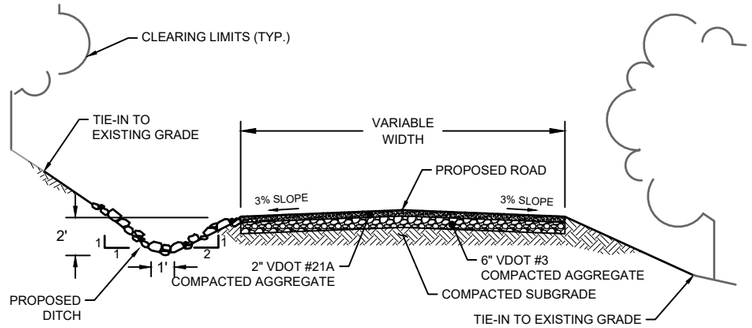


2 TYPICAL CROWNED ROAD CROSS SECTION
N.T.S.

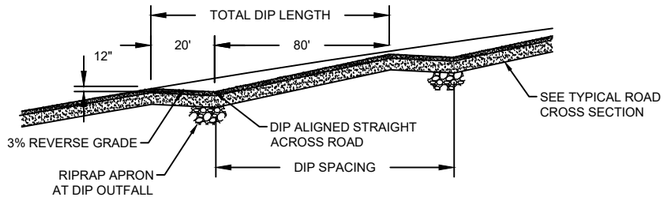


NOTES: 1. DITCHES SHALL BE LINED WITH RIP RAP IF LONGITUDINAL SLOPES ARE GREATER THAN 8%

3 TYPICAL IN-SLOPED ROAD CROSS SECTION
N.T.S.

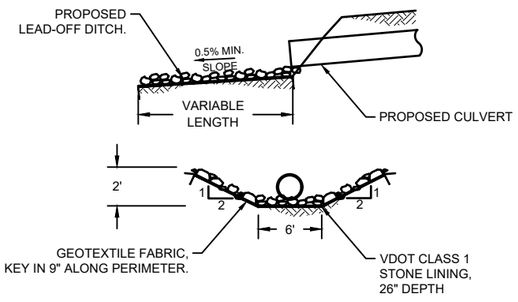


4 TYPICAL CROWNED ROAD CROSS SECTION WITH DITCH
N.T.S.



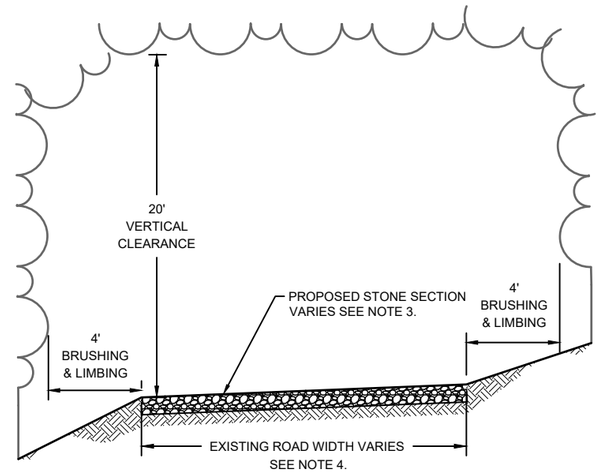
NOTES:
1. CLASS A1 RIPRAP TO BE PLACED AT DIP OUTFALL FOR ENTIRE HEIGHT OF FILL. MINIMUM DIMENSIONS FOR RIPRAP APRON ARE 8FT LENGTH, 9FT WIDTH, AND 14" DEPTH.
2. DIPS ARE TO BE PLACED AT 90DEGREE ORIENTATION TO ROAD TO PREVENT EXCESSIVE TWISTING OF VEHICLE AXLES.

5 BROAD BASED DRAINAGE DIP
N.T.S.



NOTES: 1. REFER TO VDOT PG-3 FOR RIPRAP DITCH PROTECTION

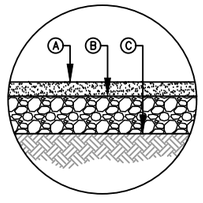
6 TYPICAL LEAD-OFF DITCH
N.T.S.



NOTES:
1. REFER TO C7-01 FOR CLEARING & GRUBBING SPECIFICATIONS.
2. EXISTING VEGETATION TO BE BRUSHED AND LIMBED UP TO 4' BEYOND EDGE OF ROAD.
3. PROPOSED STONE SECTION IS DEPENDENT ON EXISTING ROAD CONDITIONS. SEE DETAIL 8 FOR SPECIFICATION.
4. PROPOSED STONE SURFACE TO MATCH EXISTING ROAD TEMPLATE WIDTH. MINIMUM WIDTH OF 10' & MAX WIDTH OF 20' UNLESS OTHERWISE NOTED ON PLANS.

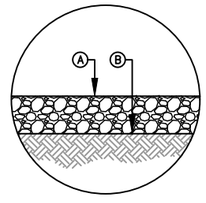
7 TYPICAL "MINOR" ROAD IMPROVEMENT
N.T.S.

EXISTING SOFT OR WET SOILS



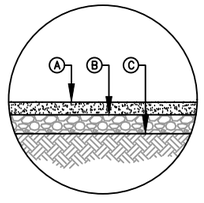
A. 2" VDOT #21A COMPACTED AGGREGATE
B. 6" VDOT #3 COMPACTED AGGREGATE
C. SUBGRADE (SOFT OR WET SOILS)

EXISTING GRASS SURFACE



A. 6" ASTM C33 (3-IN RDC) WELL GRADED COARSE AGGREGATE
B. SUBGRADE (BLADE, REMOVE, AND STOCKPILE TOP SOIL PRIOR TO INSTALLATION OF AGGREGATE)

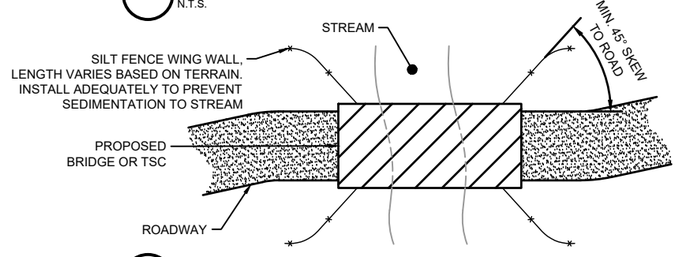
EXISTING STABLE GRAVEL SURFACE



A. 2"± VDOT #21A COMPACTED AGGREGATE
B. EXISTING STABLE GRAVEL SURFACE
C. SUBGRADE

NOTES:
1. ROAD SURFACING SHALL BE ADEQUATE TO SAFELY PROVIDE ACCESS FOR ALL ASPECTS OF THE PROJECT.
2. FOR EXISTING GRAVEL SURFACES, ADDITIONAL 2"± OF STONE AS SHOWN ABOVE IS REQUIRED FOR STABILIZATION WHEN SURFACE IS DENUDED OR DISTURBED.

8 TYPICAL ROAD STONE SECTIONS FOR "MINOR" ROADS
N.T.S.



9 EROSION AND SEDIMENT CONTROL AT TEMPORARY BRIDGES
N.T.S.

NOTE

1. TYPICAL ROAD SECTION STONE DEPTHS MAY BE REDUCED WHERE EXISTING SOIL CONDITIONS ARE DETERMINED TO BE SUITABLE BASED ON SOILS REPORT OR PENETROMETER TESTING.

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TITLE

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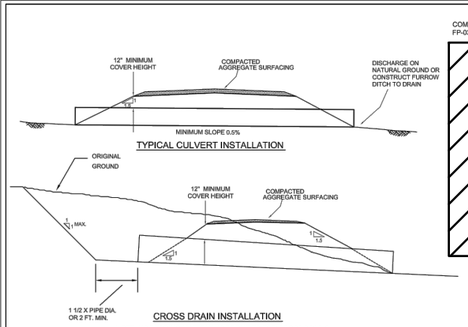
PROJECT NO. 50106442

C7-05

SHEET NO.



TYPICAL CULVERT INSTALLATION

CROSS DRAIN INSTALLATION

NOTE: NO BEDDING MATERIAL IS REQUIRED FOR CROSS DRAINS.

CULVERT INSTALLATION NOTES

CULVERTS INSTALLED IN FILLS WILL BE PLACED WITH THE FLOW LINE AT GROUND LEVEL OR LOWER, IF NECESSARY, TO ACHIEVE MINIMUM COVER HEIGHTS.

CULVERTS SHALL BE INSTALLED USING A MINIMUM COVER HEIGHT OF 1' UNLESS SPECIFIED OTHERWISE ON THE PLANS.

PRIOR TO LAYING PIPE WITH A HEIGHT OF FILL AT CENTERLINE GREATER THAN 3 FEET, THE BEDDING SHALL BE CAMBERED A MINIMUM OF 0.5% OF THE LENGTH OF THE PIPE.

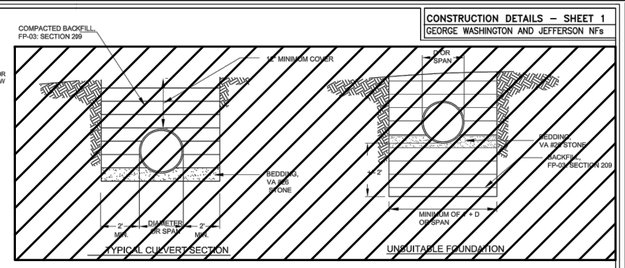
THE MINIMUM LENGTH OF A SINGLE PIPE SECTION FOR ANY INSTALLATION SHALL NOT BE LESS THAN 10 L.F. CULVERT INSTALLATIONS OF 42 L.F. AND GREATER SHALL CONSIST OF TWO PIECES.

WORK SHALL INCLUDE SHAPING AND/OR EXCAVATING CHANNEL ON INLET AND OUTLET END OF CULVERT TO FACILITATE WATER FLOW.

COMPACTION SHALL BE OBTAINED USING MECHANICAL SOIL COMPACTOR DESIGNED FOR THAT SPECIFIC PURPOSE. COMPACTION SHALL OCCUR IN 12" LIFTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING ALL CULVERT SITES PRIOR TO INSTALLATION. DEWATERING METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. DEWATERING SHALL BE INCIDENTAL TO PAY ITEM 204.

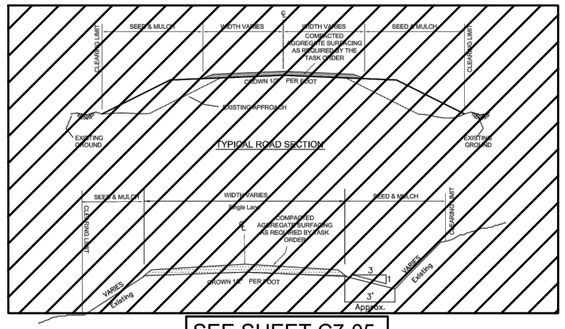
BEDDING SHALL NOT BE PLACED WITHIN 1' OF THE OUTLET OR INLET.



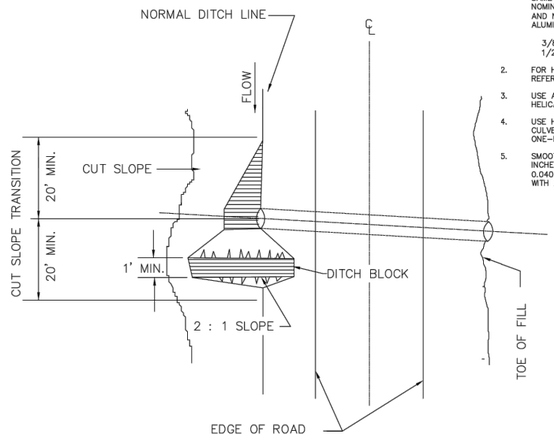
TYPICAL CULVERT SECTION

UNSUITABLE FOUNDATION

SEE SHEET C7-02



SEE SHEET C7-05



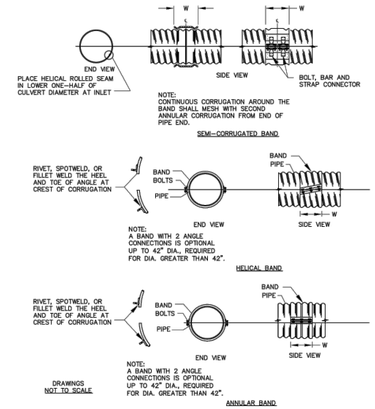
1. DITCH BLOCK NOT REQUIRED WHEN PIPE IS IN A SAG.
2. TOP ELEV. OF DITCH BLOCK SHALL BE 4" BELOW SHOULDER ELEV.

CULVERT & DITCHING PLAN AND BANDING DETAILS

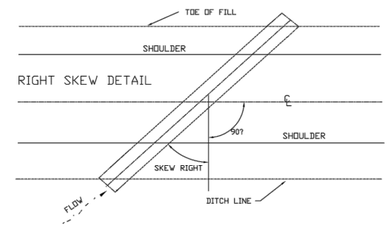
NOT TO SCALE

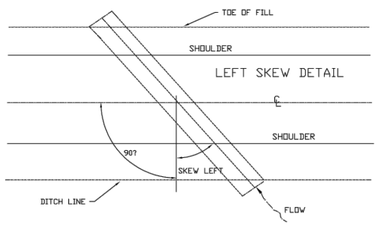
NOTES:

1. FABRICATE ANNULAR, HELICAL AND SEMI–CORRUGATED TYPE COUPLING BANDS FROM THE SAME METAL AS THE CONNECTING PIPE. PROVIDE COUPLING BANDS NOT MORE THAN 2 NOMINAL SHEET THICKNESS THINNER THAN THE THICKNESS OF THE PIPE TO BE CONNECTED, AND NO THINNER THAN 0.052 INCH (18 GAGE) FOR STEEL OR 0.048 INCH (18 GAGE) FOR ALUMINUM. FASTEN COUPLING BANDS WITH THE FOLLOWING SIZE OF BOLT:
   3/8–INCH DIAMETER – 18" (21"x15" PIPE ARCH) OR LESS
   1/2–INCH DIAMETER – 21" (24"X18" PIPE ARCH) OR MORE
2. FOR HELICALLY CORRUGATED PIPE WITH REROLLED ENDS, THE NOMINAL CORRUGATION SIZE REFERS TO THE DIMENSION OF THE END CORRUGATION IN THE PIPE.
3. USE ANNULAR CORRUGATED BANDS WITH PIPES HAVING ANNULAR CORRUGATIONS OR WITH HELICAL PIPE HAVING REROLLED ENDS TO FORM ANNULAR CORRUGATIONS.
4. USE HELICAL CORRUGATED BAND WITH PIPES HAVING HELICALLY CORRUGATED ENDS. HELICAL CULVERT INSTALLATIONS SHALL HAVE THE ROLLED SEAM AT THE INLET PLACED IN THE LOWER ONE–HALF OF THE PIPE DIAMETER.
5. SMOOTH SLEEVE–TYPE COUPLERS AND FLAT BANDS MAY BE USED FOR PIPE DIAMETERS OF 12 INCHES OR LESS. USE A MATCHING METAL HAVING A NOMINAL THICKNESS OF NOT LESS THAT 0.040 INCH (20 GAGE) FOR STEEL, OR 0.036 INCH (20 GAGE) FOR ALUMINUM, OR A PLASTIC WITH AN EQUIVALENT STRENGTH TO METAL.

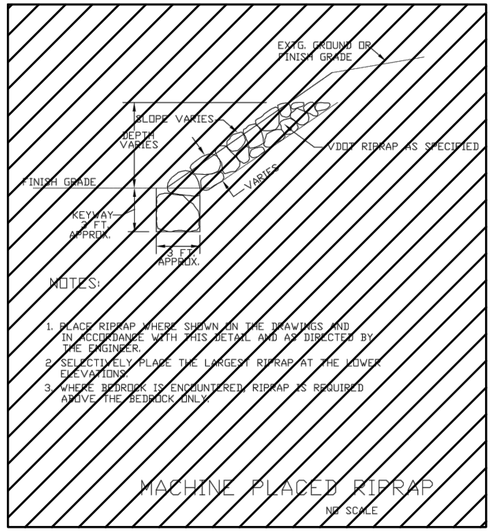


DRAWINGS NOT TO SCALE





TYPICAL CULVERT SKEW DETAIL



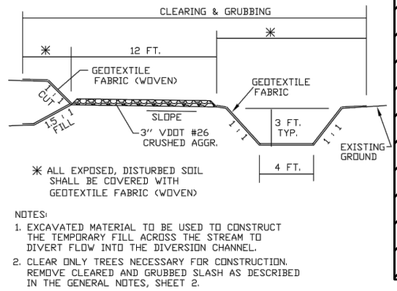
NOTES:

1. PLACE RIPRAP WHERE SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THIS DETAIL AND AS DIRECTED BY THE ENGINEER.
2. SELECTIVELY PLACE THE LARGEST RIPRAP AT THE LOWER ELEVATIONS.
3. WHERE BEDROCK IS ENCOUNTERED, RIPRAP IS REQUIRED ABOVE THE BEDROCK ONLY.

MACHINE PLACED RIPRAP

NO SCALE

SEE SHEET C7-04

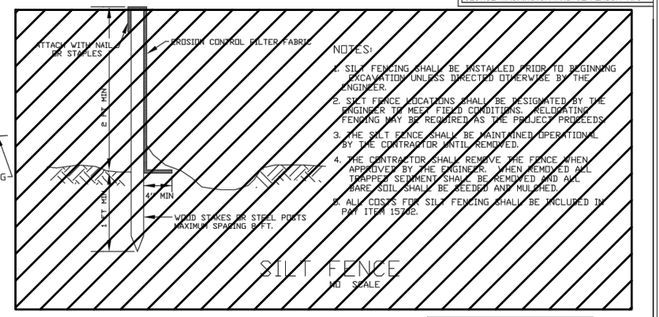


NOTES:

1. EXCAVATED MATERIAL TO BE USED TO CONSTRUCT THE TEMPORARY FILL ACROSS THE STREAM TO DIVERT FLOW INTO THE DIVERSION CHANNEL.
2. CLEAR ONLY TREES NECESSARY FOR CONSTRUCTION. REMOVE CLEARED AND GRUBBED SLASH AS DESCRIBED IN THE GENERAL NOTES, SHEET 2.

TYPICAL SECTION
Temporary Bypass Road & Stream Diversion Channel

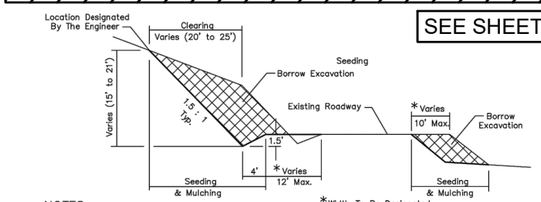
No Scale



NOTES:

1. SILT FENCING SHALL BE INSTALLED PRIOR TO BEGINNING EXCAVATION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. SILT FENCE LOCATIONS SHALL BE DESIGNATED BY THE ENGINEER TO MEET FIELD CONDITIONS. ADDITIONAL FENCING MAY BE REQUIRED AS THE PROJECT PROCEEDS.
3. THE SILT FENCE SHALL BE MAINTAINED OPERATIONAL BY THE CONTRACTOR UNTIL REMOVED.
4. THE CONTRACTOR SHALL REMOVE THE FENCE WHEN APPROVED BY THE ENGINEER. WHEN REMOVED ALL TRAPPED SEDIMENT SHALL BE REMOVED AND ALL BARE SOIL SHALL BE SEEDED AND MULCHED.
5. ALL COSTS FOR SILT FENCING SHALL BE INCLUDED IN PAY ITEM 15102.

SEE SHEET 6K



NOTES:

1. Dispose Of Clearing Slash On Existing Fill Slopes.
2. Taper Borrow Removal At Beginning And End To Blend Into Existing Cut And Fill Slopes.
3. Maintain Existing Cross Slope Of Roadbed.
4. Place 3" Of VDOT #26 Crushed Aggregate On Disturbed Roadbed As Directed By The Engineer. Approx. 300' In Length.

BORROW EXCAVATION DETAIL

NOT TO SCALE

Dewberry

Dewberry Engineers Inc.
4805 LAKE BROOK DRIVE
SUITE 200
GLEN ALLEN, VA 23060
804.290.7957 (PHONE)
804.290.7928 (FAX)

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE

No.	DATE	BY	Description
3	07/30/21	ARB	FOR REVIEW
2	06/14/21	ARB	FOR REVIEW
1	02/25/21	ARB	FOR REVIEW
0	02/10/21	ARB	DRAFT FOR REVIEW

REVISIONS

DRAWN BY ARB
APPROVED BY
CHECKED BY KP
DATE 07/30/2021

TITLE

CONSTRUCTION DETAILS

PROJECT NO. 50106442

C7-06

SHEET NO.